

**FINAL COMMENTS BY:**

**The Dow Chemical Company  
Louisiana Division**

**TO**

**Draft Permit NPDES LA0003301  
Dated August 23, 1984**

**(Superseding Previously Submitted Partial  
Draft Comment of June 25, 1984,  
July 19, 1984 and August 9, 1984)**



## DOW CHEMICAL U.S.A.

August 22, 1984

LOUISIANA DIVISION  
P. O. BOX 150  
PLAQUEMINE, LOUISIANA 70765-0150  
504 389-8000

Ms. Ellen Caldwell  
Permits Branch (6W-PS)  
U. S. Environmental Protection Agency  
Region VI  
Interfirst Two Building  
1201 Elm Street  
Dallas, Texas 75270

COMMENTS TO PROPOSED (DRAFT) NPDES PERMIT NO. LA0003301  
DOW CHEMICAL U.S.A., LOUISIANA DIVISION

Dear Ms. Caldwell:

The attachment constitutes the Comments of The Dow Chemical Company, Louisiana Division, to the referenced Draft NPDES Permit, due on or before August 24, 1984 per Region VI letter to Dow by R. E. Hanneschlager, dated June 28, 1984.

Dow's comments consist of and are assembled in an order corresponding to that of the draft permit as follows:

1. Comments which focus on the Fact Sheet in terms of its sufficiency and quality and;
2. Comments specifically pertinent to each process area or functional activity of Dow's Louisiana Division operations, consisting of:
  - a. A revision of the draft comments which Dow submitted and presented to EPA in a meeting at the Dow location on July 19, 1984 and at a meeting in Dallas on August 9, and;
  - b. Comments on process area permit limitations, not previously commented on by Dow, covering the following plants:

LHC II/LHC III - 2200 & 700  
Glycol I - 400  
Poly A - 010  
Poly B - 009  
Sanitary Sewer - 1100  
Vinyl II - 1700  
DOWANOL® - 1800  
R&D Block - 2400  
Northwest Landfill - 3001

Tankcar - 1200  
Power I - 1300  
Power II - 1900  
Water Treatment - 1400  
Methanes - 1500  
DIS - 16010  
Catalyst Treatment - 1400  
Ethylene Carbonate - 2600  
Coal Pile - 2800  
Old Tank Farm - 2900

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U.S. EPA, Dallas  
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3. A revision of the so-called generic comments previously submitted and presented EPA in a meeting in Dallas, Texas at EPA Headquarters on June 25, 1984, consisting of:
  - a. Revisions to what was submitted and;
  - b. Comments and generic issues and subjects not previously submitted to EPA.
4. A summary compliance schedule which will be necessary in order for Dow to meet certain draft permit limitations and conditions.

THIS SUBMISSION CONSISTS OF COMMENTS NOT PREVIOUSLY SUBMITTED TO EPA AS WELL AS REVISIONS TO COMMENTS PREVIOUSLY SUBMITTED, AS DESCRIBED ABOVE, AND CONSTITUTES DOW'S CONSOLIDATED, FINAL AND COMPLETE COMMENTS TO THE DRAFT PERMIT LA0003301 (EXCEPT AS NOTED).\*

While all previous submissions of comments by Dow should be discarded in favor of today's submission, the previous comments were submitted in draft form for the purpose of facilitating the early communication of Dow's concerns to EPA as well as to permit EPA, Region VI, an early start toward understanding and considering Dow's concerns about this very, very complicated and comprehensive draft permit.

The final consolidated comments being submitted today do not constitute wholesale or drastic revisions to Dow's draft comments submitted previously such as to render any previous work invested by Region VI in the draft comments of no value. Indeed, they were and are of great value in considering today's submission.

In order to facilitate EPA's consideration of these comments, we have used the following format in presenting our comments (and draft comments):

- A. Comment statement of the problem or issue.
- B. Justification for the statement consisting of a discussion, with or without data, of the problem being dealt with by the comment.
- C. Requested Changes to Draft Permit needed to overcome the problem, including revised (marked up) copies of the pertinent draft permit page.
- D. Requests for Clarification concerning the derivation and/or basis of specific limitations or conditions in the draft permit.

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Comments made by various Agency personnel during the clarification meetings that have occurred between Dow and EPA (June 25, 1984 in Dallas, Texas, July 19, 1984 and August 9, 1984) lead Dow to believe that Region VI is seriously targeting October 1, 1984 as a date on which to issue a final decision on whether or not (with or without changes) to issue an NPDES Permit to Dow.

Considering the due date for comments, the date of this submission, the tremendous complexity of Dow's facility and permit and the fact that Dow has invested a super-extraordinary effort, involving the equivalent of five people for well in excess of two months for preparation of comments, Dow considers that for EPA to devote only a period of approximately 30 days (i.e. end of August to end of September, 1984) in which to digest Dow's comments, properly consider them, review the draft permit for possible necessary changes, prepare responses to Dow's comments, and draft a final decision - all toward the formalistic goal of achieving an October 1, 1984 deadline for issuing a final decision, would be grossly unfair to Dow and be totally inadequate.

Accordingly, we seriously request Region VI to abandon its October 1, 1984 deadline, if it has such a target, and devote a reasonable time and effort to examining the comments of Dow and any other submitters, including considering any comments of the State of Louisiana relative to certification, so that an environmentally and technically sound NPDES Permit will be issued. If this is done, we believe that most, if not all, of the administratively resolvable problems can be overcome.

We doubt there is any NPDES Permit issued or being worked on that is anywhere near as complex as LA0003301, the instant permit. It therefore deserves a serious, studied and well considered effort by EPA -- and moreover, a comparable effort to that of Dow. We did not have any more "spare" people to devote to this permit than EPA. We, nevertheless, "...found the time..." which is what EPA must, in fairness to permittees, do. After all, EPA and the State of Louisiana are, in effect, partners with Dow in this worthy environmental effort.

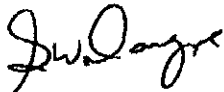
While these are Dow's final written comments, Dow does intend to submit the following additional comments and for the reasons indicated:

\*On or about June 28, 1984, Dow requested EPA, Region VI, for its justification document underlying the Fact Sheet (which EPA agreed to furnish). On July 9, 1984, not having received it, we filed an "FOIA" request for it. Hence, not having received it prior to this submission, Dow intends to submit supplemental comments to the Fact Sheet within a few days after we receive the justification.

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A computer analysis of existing data for TPH/TPA demonstrating which daily maximum to daily average ratio is appropriate considering the variation of the individual TPH/TPA members, in order to achieve a 99% confidence level. The underlying data are available but could not be physically processed in time for submission of these comments, though the problem is discussed in today's comments.

Sincerely,



G. W. Daigre  
Health and Environmental Manager

sb

Attachment

## FACT SHEET COMMENTS

### COMMENT NO. 1, PAGES 3 THROUGH 21

The fact sheet is fatally defective in that: it fails to set forth the principal facts, the significant factual, legal and methodological basis for the draft permit and the related policy questions sufficiently enough to enable the permittee and the public to fully understand the basis for and the derivation of the permit limits. Moreover, it appears, from the explanations and lack of explanation and disclosure of data, that many permit limits are without support in the record.

#### Justification

In order to point out the many defects in the Fact Sheet, hence, basis to support many limitations in the draft permit, each defect has been circled on a copy of the Fact Sheet and numbered. Each number item is listed and a brief explanation given to describe why the item was identified as a defect.

<u>Item No.</u>	<u>Description of the Defect</u>
1	Zip Code is 70765-0150.
2	Typo - DOWANOLS®
3	Ethylene and Propylene
4	Final Outfall flow based on most recent 18 months DMR data indicates the following:  Ave/Daily - 446 MGD Max/Daily - 654 MGD Min/Daily - 300 MGD
5	Typo - Intermittent
6	What is the basis of these numbers? Permittee has no idea where they came from or what is meant by these concentrations, or how it was applied.
7	Typo - 001
8	Typo - Methyl Chloride

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COMMENTS  
FACT SHEET  
PAGE 2

<u>Item No.</u>	<u>Description of the Defect</u>
9	Typo - Carbon Tetrachloride
10	Typo - considered
11	See bracketed portion following

The Fact Sheet should be supplemented to fully reflect the history of BAT related correspondence and meetings between Dow and Region VI, as summarized follows:

<u>Date</u>	<u>Item and Description</u>
May 5, 1982	Dow letter signed by J. B. Martin of Dow to J. Dehn requesting revisions to the November, 1979 permit.
June 1, 1982	Dow letter signed by J. B. Martin of Dow to J. Dehn clarifying points made to EPA, May 7, 1982.
January 24, 1983	EPA, Region VI, letter signed by O. Cabra referencing an EPA plant visit relative to BAT and requesting certain information.
February 9, 1983	Letter from D. Graham of Dow confirming receipt of January 24, 1983 letter.
March 17, 1983	Letter from B. Thomas of Dow to G. McKenna of State Dept. of Natural Resources noting visit of McKenna to Dow plant on March 14, 1983 for purposes of State certification and submitting process descriptions requested by McKenna.
April 15, 1983	Letter from J. B. Martin of Dow to O. Cabra, noting meeting between Dow and EPA on January 10 and 11, and submitting a partial response to EPA's request of January 24, 1983.
August 18, 1983	Letter to O. Cabra of EPA by J. B. Martin of Dow submitting the remainder of the information requested by EPA on January 24, 1983.

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<u>Date</u>	<u>Item and Description</u>
August 23, 1983	Letter by J. B. Martin of Dow to G. McKenna of State Dept. of Natural Resources submitting a draft permit with Dow's proposed changes to the existing permit along with explanation of future pollution control projects.
September 1, 1983	Letter by J. B. Martin of Dow to J. Dehn of EPA submitting Dow's proposals for the "next" BAT Permit.
September 9, 1983	Letter by D. W. Graham of Dow to J. Dehn of EPA submitting data per phone conversation August 23, 1983.
<u>OCTOBER 21, 1983</u>	Meeting between Dow and EPA on a BAT Permit.
November 17, 1983	Letter by J. B. Martin of Dow to J. Dehn of EPA answering October 21, 1983 questions.
April 13, 1984	Letter by J. B. Martin of Dow to S. Becker of EPA advising EPA that Dow will, by May 15, 1984, submit certain identified information relative to a BAT Permit.
April 18, 1984	Letter to J. Dehn of EPA by D. Gustafson of Dow advising Dehn of the 1982 and 1983 discharge losses at Poly A and Poly B plants, requesting elimination of monitoring at Outfalls 009 and 010.
May 15, 1984	Letter to J. Dehn of EPA by D. Gustafson of Dow submitting the Dow data promised in the April 13, 1984 letter.
<u>MAY 26, 1984</u>	EPA published draft BAT Permit.
June 8, 1984	Letter from Dow requesting extension to 120 days for comment period.
June 14, 1984	EPA letter to Dow granting 30-day extension to July 26, 1984.



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<u>Item No.</u>	<u>Description of the Defect</u>
<u>Date</u>	<u>Item and Description</u>
June 20, 1984	Letter by G. W. Daigre of Dow to M. Satterwhite of EPA confirming plans to visit EPA in Dallas, Texas on June 25, 1984 with agenda for meeting attached.
<u>JUNE 25, 1984</u>	Meeting in Dallas between Dow and EPA.
June 26, 1984	Letter by Vinson and Elkins (for Dow) to Dick Whittington of EPA requesting an additional extension to the comment period to August 24, 1984.
June 28, 1984	Letter to G. W. Daigre of Dow from R. E. Hanneschlager of EPA extending the comment period to August 24, 1984.

- 12 Division final outfall flow averages 446 MGD. See note 4 on previous page.
- 13 Lack of analytical sensitivities for some parameters requires effluent regulations at upstream sources; not the layout of the return water system.
- 14 Should be "Final Outfall 001".
- 15 Internal outfall numbering is inconsistent with draft permit.
- 16 Should be "Final Outfall 001".
- 17 The permittee has no idea what this statement means. Please explain.
- 18 This statement is not true. What is the source of this information? The permit writer had no data to support this conclusion.
- 19 The permittee doubts seriously that this is the purpose for biomonitoring. In fact, the whole paragraph is not clear. To what does "such dilution" refer? There is no antecedent basis. Please note Dow's comments on biomonitoring in the Part II and III Comments.

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FACT SHEET  
PAGE 5

- 20                   Typo - presence.
- 21                   Inconsistent with draft permit. There is no need for a back-up oxygen demand parameter since TOD has been used successfully to show no oxygen demand problems (< 100 lb/day TOD). See comments on CPE Plant.
- 22                   Inconsistent with draft permit but not needed anyway. No justification for this parameter.
- 23                   See "OTCW - Net TOD" section.
- 24                   Typo - inorganic.
- 25                   Based on limited data (one sample each outfall) in Form 2C submittal. See more recent data in comments of internal outfall for the Chlorine plants.
- 26                   What is the basis of this number?
- 27                   Run-on sentences.
- 28                   Should be 0311.
- 29                   Incorrect internal outfall numbers. Should be 331, 341, 351, 361 and 371.
- 30                   What does "adjacent to the chlor-alkali II plant" mean? Typo - alkali.
- 31                   See "OTCW Net TOD" discussion.
- 32                   Typo - Maintenance.
- 33                   CTP should be "Environmental Operations".
- 34                   Inconsistent with the statement that no priority pollutants were identified.
- 35                   What is the basis for this daily maximum number?
- 36                   How was this determined with so little data on the OTCW?
- 37                   What is the basis for the 12 pounds as it relates to the 52 lb/day limitation? This whole paragraph is confusing and has no justification given.

COMMENTS  
FACT SHEET  
PAGE 6

<u>Item No.</u>	<u>Description of the Defect</u>
38	Should have used data submitted to EPA on November 17, 1983 which gave more representative, updated flows.
39	Should be "reflux" instead of influx.
40	Run-on sentence.
41	What is basis for the 0.1 mg/l level? Since the permit writer allowed for six compounds in the process water, why were not six compounds allowed in the OTCW?
42	This is equivalent to four inches of rain per day. Not very realistic! Should be more like 0.06 MGD.
43	What is "emperical data"? Typo - Empirical. The empirical data used should be disclosed.
44	Little or no chance that the rainfall run-off will contain residual chlorine.
45	Why is this a daily maximum calculation when all previous calculations have been daily average? No variability factor was allowed, why?
46	See comments on Solvents Plant.
47	Incorrect - only by direct chlorination.
48	Incorrect - No longer done.
49	Incorrect - See 47 above.
50	Not consistent with Solvents Plant OTCW (0.05 mg/l).
51	What is basis for presence of six components? At the most, there should be only two.

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<u>Item No.</u>	<u>Description of the Defect</u>
52	Typo - above.
53	Based on old data - Should have used data supplied EPA on November 17, 1983.
54	Allowed Solvents 12.5 avg/24 max for the same stream. Inconsistent!! Why the difference?
55	Typo should be "empirical". What is this "empirical" criteria? What is the basis for the criteria? The "empirical data" should be disclosed.
56	The permittee seriously doubts this - see Chlorinated Hydrocarbon comments.
57	Should be "511".
58	Should be "II".
59	Typo - olefins.
60	No naphtha used in LHC II as a raw material.
61	See OTCN - Met TOD comments.
62	Incorrect - This is Outfall 007 in existing permit. There are ten years of data in the DMR file.
63	What is the basis for such extensive monitoring? An indicator compound (benzene) makes more sense? Why can't such an indicator be used?
64	See comments on LHC II.
65	See comments on LHC II and LHC III.
66	What is Region VI standard requirement for oil and grease? 50 or 55 mg/l is used interchangeably. Please cite Region VI guidance which establishes the "standard requirement" and provide a copy.

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<u>Item No.</u>	<u>Description of the Defect</u>
67	Should be "800".
68	Typo - hydrolyzed.
69	Chromate treatment is no longer used on Glycol II. See comments on Glycol II.
70	See Glycol II comments.
71	No detectable level of nickel was reported for this outfall on Form 2C. What was basis for nickel?
72	Typo - intermittent.
73	"0001" should be "001".
74	Should be "900".
75	DMR results indicate no need to continue moni- toring some of the required parameters. Several parameters should be deleted. See Poly B comments.
76	Should be "1000".
77	Should be "Louisiana Department of Environmental Quality".
78	Should be "railcar cleaning".
79	Typo - maintenance.
80	Incorrect - have agreed to send wash water from organic cars to central treatment plant.
81	See comments on Tankcar Cleaning and Plant Maintenance.
82	"ph" should be "pH".
83	Should be "are" not "is".

COMMENTS  
FACT SHEET  
PAGE 9

<u>Item No.</u>	<u>Description of the Defect</u>
84	Typo - catalyzed.
85	Incorrect - they are recycled to another process.
86	When this calculation was made for the Solvents Plant, the result was a 30-day average, not a maximum.
87	Why was the TPH limit for 1521 based on 1 mg/l rather than limits similar to those used for Solvents and Vinyl I? Why was the limit a daily maximum rather than an average like outfalls at Solvents and Vinyl I?
88	What data does the permit writer have to be able to assume that 1541 can be treated to 0.1 mg/l? What flow rates were used for 1531 and 1541? This data must be disclosed.
89	See comments on Chlorinated Hydrocarbons.
90	Central Treatment is "2001".
91	See comments on Vinyl II Process Area.
92	Multiplication error - should be 2 rather than 4.
93	<p>The TRC requirements at Vinyl I are 17 avg/34 max. The limits at Vinyl II are not similar and appear to be calculated incorrectly: <math>3 \times 8.34 \times 1 = 25</math> lb/day maximum.</p> <p>Since TRC is a grab sample, limits should be concentration rather than mass. One cannot calculate lb/day from one grab sample and have the resulting number be representative of a day's operation.</p>
94	What is basis for 1 mg/l limit? Not consistent with the process areas.
95	What is Region VI standard? 55 or 50 mg/l. See Note 66.
96	Should be "1800".

<u>Item No.</u>	<u>Description of the Defect</u>
97	Incorrect - see comments on DOWANOLS®.
98	Typo - catalyzed.
99	DOWANOL® - ®TRADEMARK OF THE DOW CHEMICAL COMPANY.
100	No limits established in draft permit for Ethanolamine Plant. See DOWANOL®/ETHANOLAMINES comments.
101	There is no justification for controlling pH on an internal outfall. See comments on "pH".
102	Should be "2000".
103	Incorrect - no water taken from LHC II and III.
104	Typo - equalization.
105	Typo - UNOX®, ®TRADEMARK OF UNION CARBIDE CORPORATION
106	Why is there a need to put limits on BOD <sub>5</sub> ?
107	Line 8 is incorrect - should be bis(dichloroisopropyl)ether.
108	What is the basis for this assumption?
109	Where do these numbers come from?
110	Should be an equal sign?
111	See comments on Environmental Operations.
112	Should reflect the two priority pollutants in the effluent.
113	Typo - naphtha.
114	Typo - Bicarbonate.
115	Typo - Adsorption.

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FACT SHEET  
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<u>Item No.</u>	<u>Description of the Defect</u>
116	Doesn't make sense.
117	See comment section entitled Compliance Schedule.
118	Should be: exceeds first 3/4" rainfall.
119	Typo - volatile.
120	What were the actual numbers used in arriving at the TPA limitations?
121	How can the permit writer justify the use of inorganic guidelines in an organic process? The permit writer has no knowledge of the process stream which would allow for the determination of whether or not the treatment will work. There is no justification given for such technology transfer. See LHC III comments.
122	Incorrect - Vinyl I.
123	This does not make any sense!
124	Typo - available.
125	How can the permit writer justify using activated sludge treatment levels for steam stripping technology? What is basis for TOD/BOD <sub>5</sub> ratio of 3? Should be 4 or more.
126	The permit writer knows that this stream is high pH and phenol will not steam strip at high pH values. This limit is not technically justified.
127	Typo - adsorption.
128	Not correct - All three compounds will be present at the same time since these organics are a result of scrubbing cracked gas where relative level of impurities remains constant.



<u>Item No.</u>	<u>Description of the Defect</u>
129	Why shouldn't these organic levels be additive as with other organics in the effluent guidelines?
130	Just because an organic is present in a waste stream is not justification alone for setting limits on this organic. BAT treatment has to be documented.
131	This assumes that naphthalene was present in the feeds of some of the biox plants studied by EPA. Is this correct? What data was used?
132	"Very little data is available" - that's a good reason for not regulating now so that data can be collected that will be representative of operations.
133	Incorrect - ".01" should be "0.1", hopefully.
134	Since the proposed guidelines are not applicable, what criteria were used to establish limits?
135	Which "above rationale"?
136	Should be "2400".
137	What are treatable quantities for BOD <sub>5</sub> and TSS?
138	Should be "2500".
139	See comments on Catalyst Treatment.
140	Typo - precipitation.
141	Should be "2600".
142	Should be "2700".
143	Typo - adsorption.
144	Were the reported levels above treatability levels?

COMMENTS  
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<u>Item No.</u>	<u>Description of the Defect</u>
145	What is basis for .25. Should be 0.2.
146	Citation of 402(a)(1) is not enough. How was it established, using what data base?
147	See comments on Coal Gasification. There is no data base in existence on which to set limits for this plant.
148	Should be "2800".
149	Should be "100 year"?
150	Should be "2900".
151	What is the basis for the priority pollutant limit? How was it calculated?
152	Should be "3000".
153	Typo - conform.
154	Should be "is".
155	Typo - Grease.
156	Typo - Interfer.
157	Bayou Bourbeaux flows into the Intra-Coastal Canal <u>not</u> Bayou Grosse Tete. Is the Intra-Coastal Waterway also effluent limited? In what manner?
158	50 or 55 mg/l?

COMMENT NO. 2, PAGES 3 THROUGH 21

The Fact Sheet does not meet the requirements of 40 CFR 124.8 and 124.56, is fatally defective, and should be reissued to cure its defects whereupon the comment period should be reopened to give the permittee and the public an opportunity to comment on the reissued Fact Sheet.

Justification

The purpose of the fact sheet is to summarize the principal facts used to derive the applicable permit limitations and to disclose the significant factual, legal, methodological and policy questions considered in preparing the draft permit. The Fact Sheet is seriously deficient in this regard thus preventing the permittee and the public from commenting on the permit in a sufficiently informed manner. More specifically, the Fact Sheet does not meet the requirements of 40 CFR 124.8 and 124.56 because:

1. In many instances, the Fact Sheet gives insufficient or no apparent basis at all for permit limits or the treatability numbers underlying them. See Comment No. 1.
2. There are numerous instances of gross inconsistencies among the treatability numbers used to establish permit limits.
3. The fact sheet refers many times to the use of "empirical data" without disclosing the data or referencing it so that the permittee can examine it.
4. There are instances of misapplication of the proposed effluent guidelines for OCPSF category of sources.
5. There are instances of technology transfer with respect to treatability that are not justified.

40 CFR 124.56 is even more specific than Part 124.8. It requires ".... Any calculations or other necessary explanation of the derivation of the specific effluent limitations and conditions..." as based on the effluent limitation guideline... "...or an explanation of how the alternate effluent limitations were developed." The Fact Sheet woefully fails to meet these requirements.

In any event, Dow has prepared its comments in spite of a deficient Fact Sheet focusing its attention on the more serious deficiencies and hoping that its comments were appropriate to the oftentimes undisclosed data and cryptic guidance in the Fact Sheet.

COMMENT NO. 4, PAGES 3 THROUGH 21

On June 28, 1984, Dow asked Region VI, EPA, for a copy of the justification document underlying the preparation of the Fact Sheet to enable Dow to more fully respond to the draft permit. As of the date of

Dow's final submission of its comments, August 22, 1984, Dow has not received this material. Hence, when it is received, we will be submitting supplemental comments on the Fact Sheet.

#### Justification and Discussion

NPDES Permit LA0003301 is, we believe, the most comprehensive and stringent NPDES Permit yet noticed by EPA. The sheer length and complexity of it deserves issuance of a well prepared and well documented Fact Sheet. A Fact Sheet should be prepared and published that summarizes the derivation and basis of the permit in such detail as is equivalent to the complexity of the permit. We do not believe that the Fact Sheet for this draft permit is anywhere near sufficient to enable a fully informed comment by those affected. Dow in many instances could only surmise or guess at the meaning and derivation of certain numbers and statements in the Fact Sheet underlying the permit.

Accordingly, EPA should have either prepared a much more comprehensive Fact Sheet or made available much more of the background preparation underlying it. It did not do this and has not as of the end of submission of these comments.

Dow did file an FOIA request for such background material on August 10, 1984 after it failed to receive the material in response to a request of June 28, 1984 and in response to a Region VI indication that it would be available via an FOIA request.

When and if Dow finally does receive the Region VI justification document for the Fact Sheet, Dow intends to supplement its comments to the draft permit as may be appropriate and submit them to EPA, notwithstanding that the comment period has expired. It is Dow's position that Dow has done all it could to comment to the draft permit notwithstanding an inadequate Fact Sheet. Hence, Dow's supplemental comments should be made part of the formal record when received and would legally constitute part of the record.

#### SUMMARY REQUEST FOR REISSUANCE OF THE FACT SHEET

Dow requests that Region VI, EPA reissue the Fact Sheet for LA0003301 and allow a 30-day period thereafter for public comment. The newly issued Fact Sheet should comprehensively summarize the factual basis, give the derivation of all permit limits, with an explanation of how all treatability numbers were derived and applied, and disclose all so-called "empirical data" used and the base of all assumptions made. In any event, the new Fact Sheet should endeavor to overcome the defects documented by Dow in this comment.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION VI  
1201 ELM STREET  
DALLAS, TEXAS 75270

"ENVIRONMENTAL CONTROL"

MAY 29 1984

FACT SHEET

For proposed National Pollutant Discharge Elimination System (NPDES) Permit No. LA0003301 to discharge to waters of the United States.

Issuing office:

U. S. Environmental Protection Agency  
Region VI  
InterFirst Two Building  
1201 Elm Street  
Dallas, Texas 75270

Applicant:

Dow Chemical U.S.A.  
Louisiana Division  
P.O. Box 150  
Plaquemine, Louisiana 70764

1. The applicant currently operates facilities for the manufacture of methyl cellulose, chlorine, caustic, high and low density polyethylene, chlorinated polyethylene, ethanalamines, dowanals, ethylene and propylene glycols and oxides, light olefins, chlorinated methanes, chlorinated solvents and ethylene dichloride/vinyl chloride, and research facilities.

2. As described in the application, the plant site is located in Iberville Parish, Louisiana. Discharge is to the Mississippi River in Segment No. 0701 of the Lower Mississippi River Basin Basin.

3. The known uses of the receiving waters are:

Secondary contact recreation, propagation of fish and wildlife, and domestic raw water supply.

4. Stream standards are:

The general criteria and numerical criteria which make up the stream standards are provided in "State of Louisiana Water Quality Criteria," Louisiana Stream Control Commission, 1977.

5. The following is a quantitative description of the discharge described in the application:

a. <u>Outfall</u>	<u>Flow Frequency</u>	<u>Avg/Daily (MGD)</u>	<u>Max/(MGD)</u>	<u>Min/(MGD)</u>
001	Continuous	750	770	624
002	Intermittant*	N/A	N/A	N/A
003	Intermittant*	N/A	N/A	N/A
004	Intermittant*	N/A	N/A	N/A
005	Intermittant*	N/A	N/A	N/A
006	Intermittant*	N/A	N/A	N/A
007	Intermittant*	N/A	N/A	N/A
008	Intermittant*	N/A	N/A	N/A

\*Wet weather flow only.

b. <u>Outfall</u>	<u>Temp. °F</u> <u>Avg/Summer</u>	<u>Temp. °F</u> <u>Avg/Winter</u>	<u>Temp. °F</u> <u>Max</u>	<u>Temp. °F</u> <u>Min</u>
001	96.8	73.4		
002 through 8	ambient			

		Effluent Characteristics	
c. Outfall	Parameter	Daily Avg (mg/l)	Daily Max (mg/l)
001	Biochemical oxygen demand		
001	Chemical oxygen demand		
001	Total organic carbon		
001	Total suspended solids		
001	Ammonia nitrogen		
001	Total residual chlorine	0.6	0.9
001	Total organic nitrogen		0.9
001	Oil and grease		0.18
001	Total copper	N/A	0.09
001	Total lead	N/A	0.07
001	Total nickel	N/A	0.015
001	Benzene	N/A	
001	Ethylbenzene	N/A	
001	Toluene	N/A	
001	Methylchloride	N/A	
001	Methylene chloride	N/A	.016
001	Chloroform	N/A	.035
001	Carbontetrachloride	N/A	
001	Dichlorobromomethane	N/A	
001	Chlorodibromomethane	N/A	
001	1,2-dichloroethane	N/A	.015
001	1,2-dichloropropane	N/A	.019
002 thru 008	Total Organic Carbon	N/A	<50
002 thru 008	Oil and grease	N/A	<15

6. On the basis of preliminary staff review, the Environmental Protection Agency, after consultation with the State of Louisiana, has made a tentative determination to issue a permit for the discharge described in the application.

7. The proposed effluent limitations are contained in the attached proposed draft permit.

8. The following items were utilized or considered in establishing the basis for the proposed draft permit:

- a. Existing NPDES Permit LA0003301, effective February 10, 1980, expiration March 31, 1981 and extended by regulations upon application by permittee;
- b. NPDES application (Form 1 & 2C) dated January 5, 1981 and supplemental information April 15, 1983; August 18, 1983; September 9, 1983;
- c. 40 CFR Part 414 & 416 proposed March 21, 1983 Organic Chemical guidelines;
- d. 40 CFR Part 415 promulgated June 29, 1983 Inorganic Chemical guidelines;
- e. Plant site visit January 10, 1983;
- f. The Organic and Inorganic Chemical Development Documents;
- g. Consultations with the Louisiana Department of Natural Resources.

9. The following is an explanation of calculations or other necessary explanation of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under 40 CFR §122.44 and §122.45 and reasons why these are applicable:

The final discharge at outfall 001 is comprised of less than 20 MGD of process waste water in about 650 MGD non-contact cooling water and uncontaminated storm drainage. Application of Best Available Technology (BAT) limitations at the final outfall would incur analytical difficulties. Therefore, BAT limitations were moved upstream to the source of the pollutants.

The Dow sewage system, being conceived long before NPDES regulations, is not amenable to retrofitting stream segregations, although the intake system is totally segregated from the effluent canal. This layout requires effluent regulations at upstream sources prior to entering the effluent canal. The permit requirements regulate discreet internal outfalls and every effort was made to avoid an effluent limitation being applied to 2 or more sources, i.e., sum of outfall requirements were eliminated as practiced in the BPT permit.

The upstream sources were chosen by manufacturing areas. For example, the chloro-alkali II plant, chlorine plant and caustic plant are regulated by the Inorganic Chemical effluent guidelines for the Chlorine-caustic subcategory and this area is the 300 area. Since all discharges flow to outfall 001 the internal outfalls regulated are 301 (chloro-alkali II), 311 (chlorine plant), 321 (chlorine plant rectifier cooling water), 331 (caustic plant 50% caustic evaporator barometric condenser water), 341 (caustic plant 73% caustic evaporator barometric cooling water), 351 (caustic purification cooling water, and 361 (caustic plant non-contact cooling water). The guidelines were appropriately applied to internal outfalls 301 and 311.

16 Outfall 0001 - combined process, utility, cooling and stormwater drainage.

This is the entire combined outfall, treatable process outfalls and contaminated stormwater are treated and monitored prior to entering the return canal. Acidic and alkaline process streams are controlled to achieve pH neutralization at the final outfall. The continuously monitored stream must comply within the range of 6 to 9 pH a minimum of 99% pursuant to 40 CFR §401. Continuous monitoring of temperatures is asked for at this outfall. The pH instrument must be adjusted for temperature and an assessment of the thermal impact combine for this requirement.



Total residual chlorine is fairly ubiquitous at the Dow facility. Monitoring only is asked for to help identify fugitive sources and point out unintentional releases of chlorine.

Biomonitoring is asked for at the final outfall to assess the containment and stream segregation endeavors. BAT treatment at the various units should ~~eliminate toxicity after such dilution~~. However, the possibility of priority and other toxicants entering the final outfall discharge is a remote but finite possibility. 19

In order to meet the goals of the Clean Water Act as enumerated in Section 101, the EPA may require under the authority of Section 308 that treated effluents be biomonitored. The discharge of toxic priority pollutants from several internal outfalls have been established in the consolidated application or its potential has been demonstrated earlier in this document, and permit requirements have been established for toxic priority pollutants which represent the degree of effluent reduction attainable through the application of BAT (best available technology economically achievable). While Region 6 feels comfortable with the ability of its BAT permits to control the discharge of toxics, the monitoring of specific chemical parameters alone does not measure toxicity. The most direct and cost-effective approach to measuring effluent toxicity is to perform a static bioassay test of the treated effluent.

The permittee will utilize the screening test procedures and LC50 methodology set out in "Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms," EPA-600/4-78-012. No presumption should be made should the permittee pursuant to conditions specified in the permit need to establish the LC50 of the treated effluent. The bioassay information will be used by the State and EPA in determining which receiving waters may have existing or potential use impairments. The effluent bioassay information by itself will not be used to derive permit limits nor used to show cause and effect relationships. Other data gathering such as fixed station monitoring, intensive surveys, fate and effect studies and/or chronic testing would be necessary to establish cause and effect relationships. All of this information together would then become a part of the continuing planning process used to direct attainability studies, site specific criteria modification studies, and water quality permitting requirements. The bioassay data will not be used in determining compliance with the permit limits. Compliance with the permit limits will rely on chemical testing.

#### Area 100 - Chlorinated polyethylene area.

20 The BPT conditions of this outfall is considered BCT except for the potential presence of total residual chlorine and a backup oxygen demand parameter. Therefore, TOD and TSS are continued and monitoring for COD and TRC is asked for. A limit for TRC was established at 2 mg/l daily maximum. 21

#### Area 200 - Once-through cooling water from methyl cellulose unit.

Reporting of flow and pH is asked for. The cooling water was described as non-contact in the application. Therefore, a limit of 5 mg/l net increase in TOD was established as a daily maximum limit for 0201. The technology employed for this requirement is timely plant maintenance and proper cleanup and spill prevention procedures. 23

Area 300 Chlor-Alkali II and Chlorine Plant .

24 Effluent limitations and monitoring requirements were established at outfalls 0311 and 0321 for the Chlor-Alkali II and Chlorine plants for total suspended solids, total residual chlorine, copper, lead and nickel as set forth in the Inorganic Chemical effluent guidelines promulgated in 40 CFR Part 415.62(b) and 415.63(b).

The NPDES application reported treatable quantities of halogenated organics. 25 The proposed organic chemical guidelines do not apply at this outfall since the technology is based upon activated sludge treatment. Chloro-alkali effluent is not amenable to this technology. However, physical/chemical treatment of steam/air stripping or activated carbon adsorption technology is available.

The inorganic chemical development document was utilized to derive equitable flow rates to apply BAT technology for control of halocarbons at 0311 and 0321. The 30-day average and daily maximum achievable levels were established based upon best professional judgment. The product of the flow and the achievable levels resulted in the proposed permit limitations in lbs/day total purgeable halocarbons. The daily maximum limit represents the 99% confidence level as applied to these discharges. The daily maximum limit at 0311 is calculated as an example:

26 
$$0.387 \text{ MGD} \times 8.34 \text{ lbs/gal} \times 1.6 \text{ lbs}/10^6 \text{ lbs (ppm)} = 5.3 \text{ or } 6 \text{ lbs/day.}$$

27 This process discharge requires BAT abatement for several metals, halocarbons and total residual chlorine, a biomonitoring requirement is therefore asked at the point just prior to entering the Dow return canal based upon 24-hr composite sampling.

In order to meet the goals of the Clean Water Act as enumerated in Section 101, the EPA may require under the authority of Section 308 that treated effluents be biomonitored. The discharge of toxic priority pollutants from outfall 0301 or its potential has been demonstrated earlier in this document, and permit requirements have been established for toxic priority pollutants which represent the degree of effluent reduction attainable through the application of BAT (best available technology economically achievable). While Region 6 feels comfortable with the ability of its BAT permits to control the discharge of toxics, the monitoring of specific chemical parameters alone does not measure toxicity. The most direct and cost-effective approach to measuring effluent toxicity is to perform a static bioassay test of the treated effluent. 28

The permittee will utilize the screening test procedures and LC50 methodology set out in "Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms," EPA-600/4-78-012. No presumption should be made should the permittee pursuant to conditions specified in the permit need to establish the LC50 of the treated effluent. The bioassay information will be used by the state and EPA in determining which receiving waters may have existing or potential use impairments. The effluent bioassay information by itself will not be used to derive permit limits nor used to show cause and effect relationships.

Other data gathering such as fixed station monitoring, intensive surveys, fate and effect studies and/or chronic testing would be necessary to establish cause and effect relationships. All of this information together would then become a part of the continuing planning process used to direct attainability studies, site specific criteria modification studies, and water quality permitting requirements. The bioassay data will not be used in determining compliance with the permit limits. Compliance with the permit limits will rely on chemical testing.

#### Utility and Once-through cooling water.

Outfalls 321, 331, 341, 351 and 361 are Once-through cooling water and storm runoff from the caustic plant, chlorine plant and adjacent to the chloro-alkali II plant. 30

Reporting of flow and pH is asked for in the draft proposed permit. The cooling water was described as either non-contact or barometric CW from the caustic evaporators. A daily maximum limit of 5 mg/l net increase of TOD was established to insure contamination is maintained at a minimum. The technology employed to meet this requirement is timely plant maintenance and proper spill prevention and cleanup procedures. 32

The above monitoring applies to each internal outfall prior to entering the final discharge canal.

#### Area 400 - Propylene oxide and intermediate area.

The process wastewater and contaminated storm drainage is sent to the Central Treatment Plant. This stream accounts for a large portion of the 7 MGD treated there and is regulated at internal outfall 2001.

The NPDES application indicated once-through cooling water is discharged here and no priority pollutants were identified in the 43 MGD discharged. In addition to reporting the flow and pH, a maximum limit of 5 mg/l Net TOD was established at internal outfalls 411 and 421. The technology employed for the net TOD requirement is timely plant maintenance and proper spill prevention and cleanup procedures. 31

Storm runoff at outfalls 431, 441 and 451 are limited to 200 mg/l TOD. Contaminated stormwater can be sent to CTP, otherwise it is allowable to send relatively low contaminated stormwater directly to the effluent canal. 32

The permittee reported the presence of 1,2-dichloropropane in the OTCW. The potential for this component to be in the rainwater also follows. A limit of 0.2 mg/l daily maximum was established at 0411, 0421, 0431, 0441 and 0451 based upon our best professional judgment. The daily maximum represents the 99 percent confidence level. Abatement must be provided to maintain an effluent long term average discharge of approximately 12 lbs/day to comply with the approximately 52 lbs/day limitation. This level of abatement was determined to represent containment in the area equivalent to BAT reductions. 33

Area - 500 -Chlorinated solvents plant area.

Dow produces various chlorinated solvents by the process of direct chlorination, thermal chlorination and dehydrochlorination to produce a wide variety of products and by-products.

The NPDES application shows the following outfalls and descriptions:

<u>Operation</u>	<u>Flow, MGD</u>	<u>Description</u>	<u>Outfall</u>
non-contact river water	30.35	discharged	501
contact river water	2.15	steam stripper/ thermal oxidizer	511
contact process water	0.38	pH neutralization	521
non-contact condensate	0.04	discharged	531

Process wastewater contaminated with purgeable halocarbons can be successfully treated by physical/chemical methods to virtually any degree of reduction. For example, data presented in the Proposed Development Document for Organic Chemical Guidelines, EPA 440/1-83/009-b, February, 1983, Vol. III, describe steam stripping of the organic volatile priority pollutants. The key component here 1,2-dichloroethane, based upon solubility, etc., can be steam stripped from its solubility limit (about 900 mg/l) to 0.05 mg/l utilizing 8 theoretical trays and 0.018 lbs steam per lbs feed. Using an aqueous influx only 6 theoretical trays are required.

Permitties 2C application reported numerous purgeable halocarbons and aromatics in the discharge. The aromatics are derived from by-product alkalinity which will be regulated at the source LHCII and III. The application of BAT technology derived by best engineering or professional judgment is authorized by 40 CFR Part 122.

The 2.53 MGD process wastewater may be steam stripped to 0.1 mg/l for each of the purgeable halocarbons detected in the 2C application and the daily average limitation calculated:  $2.53 \times 8.34 \times 0.6 = 12.5$  lbs/day daily average, the once-through cooling water has been reduced to 15 MGD. DMR data from 1982 and 1983 supports this reduction. Containment efforts at the BAT technology level involves detection and correction. We have established this level at 0.05 mg/l in our best professional judgment. The purgeable halocarbons authorized from this source is calculated:  $15 \times 8.34 \times 0.05 = 6.25$  lbs/day 30-day average.

The first three-quarters of an inch of rainfall is collected for treatment as process wastewater above. Excess stormwater and other rain runoff adjacent to the process was reported in the 2C application. The allowable contamination of purgeable halocarbons in this 1.5 MGD discharge is 1 mg/l and is based upon an evaluation of the effectiveness of spill prevention and containment, proper curbs, timely maintenance and overall good housekeeping. The proposed limit for this source is calculated:  $1.5 \times 8.34 \times 1 = 12.5$  lbs/day 30-day average total purgeable halocarbons. The sum of the three sources is 22 lbs/day and the daily maximum derived based upon variability factors, empirical data, 99% confidence levels, etc. was established at 64 lbs/day. The analytical method proposed for compliance monitoring in the proposed permit is EPA Method 601 or 624.

Total residual chlorine abatement technology is available to reduce this pollutant to any degree by addition of excess reducing agent and allowing sufficient time for the reaction to approach completion. The technology established for this facility are source control, chemical reduction and other preventive measures or combinations. It is our best professional judgment that TAC can be controlled to within 1.0 mg/l daily maximum. Calculation:  $(2.53 + 1.5) 8.34 \times 1 = 34$  lbs/day daily maximum.

Nickel was found in this outfall at treatable quantities. The long term achievable limit for nickel was reported in the Inorganic Chemical Development Document at 0.19 mg/l. Application of a variability factor of 3.15 yields the daily maximum limit. Calculation:  $2.53 \times 8.34 \times .19 \times 3.15 = 12.6$  lbs/day daily max.

Biomonitoring was asked for reasons similar to outfall 003 area.

The cooling water streams, 0501 and 0531 are required to meet the net TOD limit of 5 mg/l in a rationale similar to the 003 area requirement.

#### Area 600 Vinyl I

The permittee produces EDC by direct oxychlorination of ethylene. The EDC is thermally cracked to VCM as final product. Some VCM is chlorinated to 1,1,2-trichloroethane. The HCl by product is utilized in the oxychlorination reaction above.

The NPDES consolidated application shows the following streams and descriptions:

<u>Operation</u>	<u>Flow, MGD</u>	<u>Description</u>	<u>Outfall</u>
non-contact river water	59.6	discharged	611, 21, 31, & 41
non-contact condensate	0.25	scrubber water	681
contact process water	0.1	pH neutralized	661
treated contact process	0.03	steam stripper	651
treated stormwater	N/A	steam stripper	661
uncontaminated stormwater	N/A	discharged	671

The discharge monitoring reports for 1982 and 1983 indicate the average DTCW to be 52 MGD from area 600. The equipment is designed as non-contact or surface heat exchangers and theoretically should not be contaminated. However, exchangers develop leaks and other equipment failures result in contaminating the DTCW. The contamination must be detected and the problem corrected to maintain

low levels in the discharge. A consideration of the size and nature of the discharge along with the abatement options for control of purgeable halocarbons in this source was performed and an effluent limitation of 0.025 mg/l was established based upon BPJ. Such allowance for the daily average discharge can be calculated:  $52 \times 8.34 \times .025 = 11$  lbs/day daily average total purgeable halocarbons (TPH).

Permittee has constructed a rainwater impoundment to collect the first flush (3/4") of storm water. This stream and contact process wastewater are steam stripped prior to discharge to the effluent canal. A properly designed and operated stripper can achieve 0.1 mg/l of each of six components encountered. The final quantity may be calculated as follows:  $0.13 \times 8.34 \times 0.6 = 1 \text{ lbs/day}$  30-day average (TPH). 51

Chlorinated hydrocarbons from the above stripper and elsewhere are incinerated on site. The flue gases must be scrubbed for the HCl, etc. The scrubber water may be subject to contamination but not to the extent of the steam stripper bottoms. We have established the limit for this source to be 0.3 mg/l and the effluent limit is calculated as follows:  $0.25 \times 8.34 \times 0.3 = 1.0 \text{ lbs/day}$  30-day average TPH. 52

The Vinyl I area is the same size as the Solvents plant and we have determined to place the same storm water allowance because the first flush system is employed. The sources and limits are shown below:

source	TPH, lbs/day	
	Avg	Max
OTCW	11	22
process and stormwater	1	2
scrubber	1	2
excess stormwater	6	12
	19	38

The rationale is consistent with other chlorinated hydrocarbon facilities in Region 6 and the TPH in terms of lbs/1000 lbs product are within our empirical criteria. 53

Since 600 area commingles with 500 area the limit established at outfalls 511 and 521 must be monitored, the results summed, and the contribution from Vinyl I subtracted and reported. The biomonitoring at 501 would apply to the combined vinyl and solvents areas. 54

#### Area 700 - Light Hydrocarbons I and II (LHC) 55

The permittee converts ethane/propane and naphtha to ethylene, propylene and other olefins/aromatics by a thermal cracking process. The flows are shown below. 56

Stream	Flow	Treatment	Monitoring Point
OTCW	150 MGD	discharge	0711
contact water	.03 MGD	Benzene removal	0721
by-product alk.	.3 MGD	Benzene removal	0731
wash, rain water	<.5 MGD	discharge	0741

LHC II is operating but LHC I is down and probably will not be restarted. The permittee is required to limit the net 700 increase in 0711 to 5 mg/l in the proposed permit. The technology employed to comply with this requirement is early detection of contamination and prompt corrective action. 57

The contact process water stream contains treatable priority pollutants and the permittee is presently installing a proprietary physical/chemical treatment system (benzene removal). Proposed BAT Organic Chemicals guidelines have been promulgated in 40 CFR Part 414.34. No data are available other than flow for this discharge. Therefore, we propose to regulate the above proposed guidelines for regulating this small process stream for BOD<sub>5</sub>, TSS, total purgeable aromatics, phenol, acenaphthalene and fluorene. Other parameters regulated are TON, Oil and Grease and naphthalene on a 1/week frequency.

64 The LHC II and III process generates a by-product alkalinity stream resulting from absorption of CO<sub>2</sub> in weak cell liquor. The stream is used to neutralize excess HCl in the effluent canal near the solvents plant. The 2C application showed treatable quantities of purgeable aromatics, polynuclear aromatics, copper, lead, and nickel. The permittee is presently constructing a proprietary treatment system (benzene removal) to meet BAT requirements at the treatment system effluent. The treatment system will be designed to handle both streams so effluent limitations proposed are in terms of concentration. Monitoring may be placed at each plant or the header to the solvents area provided permittee makes such modification request.

The proposed Organic Chemicals guidelines were utilized to establish BAT for BOD<sub>5</sub>, TSS, PA's and PNA's. BPJ was utilized to establish BAT for Oil and Grease, phenol, copper, lead and nickel at 0731 and 2211 or both.

66 Outfall 0741 is regulated by Region 6 standard requirements for relatively uncontaminated storm runoff plus requirements for potential contamination by phenol and purgeable aromatics.

67 Area 008 Glycol II

68 The company reacts ethylene and oxygen over a fixed bed catalyst to produce ethylene oxide. Ethylene oxide is also hydrolysed to ethylene glycol. Treatable process wastewater is collected and sent to central treatment system. The effluent limitations established are to insure all treatable sources are sent to Central Treatment system. Chromium and zinc limitations were established in the cooling tower blowdown. These limitations were established by empirical data and experience in regulating CTBD. The limits are based upon the 92 and 99% confidence limits for treatment of chromium and zinc by a variety of methods. Included are electrolytic or chemical reduction followed by sedimentation, ion exchange treatment or side stream softening.

The company plans to eliminate chromium and zinc corrosion inhibitor in several cooling towers elsewhere at the facility. The towers will be renovated to remove traces of chromium and the removed material will be treated at the 800 area. Such operation is permissible and the requirements under such operation will be addressed in Part III.

70 Treatable quantities of nickel were reported in this stream. The Inorganic Chemical Development document established treatment technology for nickel removal at 0.2 mg/l 30-day average and 0.5 mg/l daily maximum (99% confidence level). The lbs/day limitations were calculated based upon the flow and the above technology.

72 The only stream that by-passes 0801 is intermittent acid/caustic from the water softener system. These materials are neutralized in the effluent canal prior to discharge at 0001 and are subject pH requirements there.

74  
Area 009 - Poly "B" Plant.

The permittee manufactures high density polyethylene with a low pressure slurry process. For this area no priority pollutants were reported in the application. It was established in our best professional judgement that BPT = BCT and, accordingly, no changes were established for this area.

76  
Area 010 - Poly "A" Plant. 75

The permittee manufactures low density polyethylene by the original "high pressure" process. Here again, no priority pollutants were identified in the discharge. No changes in the permit were established since BPT = BCT for this source. 75

Area 1100 - Sanitary Waste Treatment System.

Outfall 1101 is the treated sanitary sewage. The BPT requirement was retained in the proposed BAT permit since BPT = BCT. LDNR requested the daily maximum TSS be 45 mg/l, not 60 mg/l. 78

Area 1200 - Railroad loading and plant maintenance. 77

The NPDES application indicates approximately 30,000 gal/day are discharged from this area. The permittee has agreed to terminate cleaning tank cars with organic wastes; only clean acid and caustic cars requiring neutralization only will be cleaned here. Organic wastes will be retained for treatment or disposal elsewhere. The effluent limitations established for this discharge, including uncontaminated storm drainage, are 55 mg/l daily maximum TOC, 15 mg/l daily maximum Oil & Grease, 75 mg/l daily maximum TOD and a pH range of 6.0 to 9.0. 80

Area 1300 - Power Plant. 83

Once-through cooling water and boiler blowdown is discharged from this area. Reporting of pH was established as the regulatory requirement for this source. 82

Area 1400 - Water treatment plant.

The permittee converts raw river water to "potable" water and returns the coagulated river silt to the Division Return Canal. The permit conditions are determined by our clarifier return policy - the company monitors and reports TSS, COD, alkalinity and clarifying agents added during the treatment process.

Area 1500 - Chlorinated methanes 84

The permittee manufactures methyl chloride by the catalysed hydrochlorination reaction of methanol and HCl. Methyl chloride is thermochlorinated to higher chloromethanes in a non-catalysed reactor. Still bottoms are thermally oxidized and the flue gas scrubbed with non-contact river water. 82

Outfall 1511 is about 20 MGD once-through cooling water. Dow reported the outfall is relatively free of contamination. We have concluded, based upon BPL, that chlorinated organics can be excluded in this stream at less than 0.04 mg/l or 7 lbs/day on a daily maximum basis. This requirement is technically feasible by early detection and correction of leaks. The materials of construction, being compatible with the process, makes this requirement feasible. 84



87

Outfall 1521 is comprised of incinerator scrubber water, treated storm drainage and untreated excess stormwater after collection of the first (3/4") flush for treatment. A daily maximum requirement of 1 mg/l has established at this discharge. This requirement expressed in weight is 5 lbs/day daily maximum total purgeable halocarbon (TPH). The limit is technically feasible by careful control of the incinerator and steam stripper for the treated effluent and source control for the untreated storm drainage.

88

~~Process water (1531) and sulfuric acid (1541) can be treated to less than 0.1 mg/l TPH by physical/chemical treatment. The combined limit resulting from the treatment yields 1 and 2 lbs/day avg/max per day.~~

66 The storm drainage from methyl chloride storage area should not contain purgeable halocarbons because methyl chloride is too volatile. Therefore, our standard storm water requirements of 55 mg/l daily maximum TOC and 15 mg/l daily maximum Oil and Grease were applied to this effluent.

89 The combined TPH limitations from the 1500 area results in a daily average discharge of 0.006 lbs TPH/1000 lbs of product. This is essentially the same effluent reduction for other producers in Region 6 BAT permits.

#### Area 1700 - Vinyl II

The permittee manufactures 1,2-dichloroethane by both oxychlorination and direct chlorination of ethylene. The EDC is then dehydrochlorinated to vinyl chloride and hydrochloric acid. The acid is recycled back to the oxychlorination reaction above.

The permittee has three discharges from this area. Uncontaminated storm drainage from vinyl chloride storage (1731), excess storm water that cannot be collected by the first flush impoundment (1721) and the ecology area discharge (1711) which is comprised of treated stormwater, cooling tower blowdown, incinerator scrubber water, etc. Process wastewater is steam stripped and sent to central treatment (1741) for organic biological reduction.

90

The TPH in the process stream to central treatment prior to steam stripping is generally comprised of about 90% EDC, 5% chloroform and minor amounts of other halocarbons. BAT treatment should result in a 0.3 mg/l maximum concentration based upon three major halocarbons potentially present in the 0.12 MGD stream to CTP. Since CTP removes about 70% of these components by biological reduction, the limit applied at 1741 is established at 1.0 mg/l or 1.0 lbs/day daily average and 2 lbs/day daily maximum.

91

The ecology area discharge 1711 is comprised of the following:

<u>stream</u>	<u>flow</u>
CTBD	0.72 MGD
incinerator scrubber	2.1
stripped storm water	0.2
	<u>3.0 MGD</u>

Daily average limitations for each stream was established by BPJ and the calculations are as follows:

CTBD	$0.72 \times 8.34 \times 0.1 = 1$	
incinerator scrubber	$2.1 \times 8.34 \times 0.4 = 7$	
stripped storm water	$0.2 \times 8.34 \times 1.0 = 4$	92
	TOTAL	12 lbs/day
	daily max	24 lbs/day

These limitations were applied at 1711 for total purgeable halocarbons. Reporting of TOD was asked for and a limit for total residual chlorine established similar to the requirements at Vinyl I. 93

The excess storm water at 1721 was limited to 1.0 mg/l total purgeable halocarbons and total residual chlorine as BAI requirements. The standard practice to limit TOC and Oil and Grease was also included at this outfall. The storm runoff from the vinyl chloride was given Region 6's normal storm water requirements of 50 mg/l daily maximum TOC and 15 mg/l daily maximum Oil and Grease. 94

96 Area 018 Dowanols/ethanolamines 95

Ethylene oxide is reacted with aqueous ammonia in a high pressure non-catalysed process to produce ethanolamine. Also ethylene oxide is reacted with butanol or propylene oxide is reacted with methanol to produce Dowanols. 97 98

The sanitary wastes and contaminated waste waters are sent to the central treatment systems. Waste water, stormwater and miscellaneous waters are monitored and discharged if treatment is not necessary. These are sent to the treatment plant if treatable. 99

100 If these streams are within the proposed Organic Chemical guidelines they may be discharged as outfall 1801, otherwise they must be treated. The BOD<sub>5</sub> and TSS are the proposed Organic Chemical G/L limitations. Ammonia nitrogen and organic nitrogen limitations were also established at 50 mg/l based upon best engineering judgement. Chromium limitations were incorporated at this outfall to be applied at the CTBD. The limitations are our standard provisions for control of cooling tower corrosion inhibitor in concentration limits.

Area 1901 - Power II.

This discharge is comprised of utility waste water and cooling tower blowdown (CTBD). The only parameters to be regulated are the flow and pH monitoring. 101

102 Area 020 Central treatment facility.

The central treatment facility takes process wastewater from Dowanols/ethanolamines, Glycol I and II, light hydrocarbons II and III and others, in addition to sanitary wastes from various sections of the plant. The system is composed of a 10 acre equalization pond, three trains of unox reactors followed by clarification and sludge dewatering. 103 105

184

106  
Subpart C, high water use, oxidation subcategory of the proposed Organic Chemical Guidelines apply to this outfall. The BOD<sub>5</sub> and TSS standards were established in concentration. Effluent limitations for TOD, purgeable halocarbons and purgeable aromatics were established based upon best engineering judgement technology.

107  
About 90% of the wastewater treated at CTP is from the glycol units. The only organic priority pollutants detected during the priority pollutant monitoring for the 2C application was 1,2-dichloropropane and bis (2-chloroethyl) ether. These are by-products of propylene glycol chlorohydrin process. There is a potential for purgeable halocarbons, purgeable aromatics and polynuclear aromatics in the treated effluent. 108  
The proposed Organic Chemical Guidelines were utilized in establishing the effluent limitations for purgeable halocarbons and purgeable aromatics. The company will analyze the discharge by EPA Method 601, 602, 603, or 624 and meet the limits proposed in the Organic Chemical Guidelines.

The Organic Chemicals proposed guidelines were the basis for BOD<sub>5</sub> and TSS. Subpart C - Oxidation Subcategory for "High Water Use" standards are 42 mg/l 30-day average and 106 mg/l daily maximum for BOD<sub>5</sub> and 84 mg/l 30-day average and 246 mg/l daily maximum TSS.

The BPT permit controlled TOD as the sum of Outfalls 001, 007, 017, and 020 which were chlorinated polyethylenes, light hydrocarbons, EDC/VCM and central treatment system. Past performance data reported on Discharge Monitoring Reports (DMRs) from July, 1981, to June, 1983, were used to establish TOD limits for this outfall. The long term average discharge of TOD was 13429 lbs/day with a standard deviation of 5611 lbs/day. The 99% confidence level for the 30-day average TOD at the central treatment system calculates to be 26500 lbs/day. The monthly average data appears to be normally distributed:

109  
$$U.99 = R/S \cdot \frac{28031-5080}{5611} = 4.09 \text{ for the 24 data pts.}$$

118  
Goodness of fit for 25 determinations allow an R/S to be as high as 5.06.

The Max/Avg ratio for TOD in the PBT permit was 1.35;  $26500 \times 1.35 = 35850$  lbs/day TOD daily maximum. Such limit would have produced a daily maximum violation during two of the 24 months reported. The DMR's report only one maximum per month. It appears that the 99% confidence level at 2001 is very close to 36,000 lbs/day.

11  
The 26500 lbs/day TOD in the 7.2 MGD flow represents a concentration of 441 mg/l daily average TOD. TOD/TOC and BOD/TOC correlations supplied by Dow indicate the average concentration of BOD in the CTP effluent is less than 90 mg/l. It is our best professional judgment that the TOD limit is in line with BCT.

108  
Biomonitoring was asked for at 2001 which follows the previously mentioned Region 6 rationale for assessment of BAT treatment facilities ability to remove toxics. The 2C application reported 1,2-dichloropropane and bis (2-chloroethyl) ether as the only priority organic in the effluent. The levels are not different from that expected by the treatment employed at Dow. The priority metals reported in the treated discharge were present at levels readily detected by the analytical method employed but well below levels obtainable by the application of BAT treatment. 10

Area 2200 - Naphtha (Light Hydrocarbons III)

The permittee cracks ethane, propane and naphtha to ethylene/propylene and other olefinic components. Carbon dioxide is removed from the reaction mixture by absorption into a stream of weak cell liquor. The weak cell liquor is about 10% NaOH and 15% NaCl. The resultant sodium carbonate/bicarbonate alkalinity is used to neutralize excess acidity elsewhere in the plant. Dow calls this stream by-product alkalinity and is used mainly in the solvents area.

The permittee tried activated carbon absorption treatment on this stream but performance proved to be only marginal removal of priority pollutants. The company has under construction a major capital expenditure a physical/chemical treatment system which they call benzene removal. Target date of completion is December 1, 1984.

The permittee also collects the first 3/4" of storm water in the 2200 area for treatment. The treated storm water is comingled with CTBD, monitored at 022C and discharged to the effluent canal.

The only other stream is the excess storm water that exceeds the containment in the rainwater storage tank. This stream is monitored when flowing at monitoring point 022B.

The by-product alkalinity stream was monitored only if being directly discharged to effluent canal through monitoring point 022H. However, the company has agreed to meeting permit limits at the naphtha plant treatment system regardless of the final destination of the stream.

The proposed Organic Chemicals guidelines weighed heavily in our selection of permit limitations for this process. Benzene, toluene, ethyl benzene and naphthalene along with several other polynuclear aromatics, were reported on the 2C application for this area's discharges. The proposed guidelines were based upon activated sludge technology and Dow will be using a physical treatment scheme. Steam stripping is an effective treatment technology for the removal of volatile aromatics. For example, the development document describes operating conditions for steam stripping to 0.05 mg/l with respect to the number of theoretical trays required at a modest steam to feed ratio of .018 lbs/lbs.

The proposed organic chemical guidelines are therefore determined to be applicable based upon our best professional judgment for the parameters benzene, toluene and ethyl benzene. Monitoring only for naphthalene was asked for as an indicator for all polynuclear aromatics (PNA).

The 2C application indicated metals in the discharge in treatable concentrations. The technology of effective treatment of metals is thoroughly described in the Inorganic Chemical Development Document as follows:

Metal	BAT treatment, Line Filtration	
	Avg. (mg/l)	Max. (mg/l)
Copper	0.3	0.6
Lead	0.15	0.3
Nickel	0.3	0.6

## BAT treatment, Sulfide Filtration

Copper	.05 to 0.5
Lead	.05 to 0.4
Nickel	.05 to 0.5

The permittee has a choice of treatment options above to meet the limitations.

122  
Dow indicated the by-product alkalinity from LHC II (0731) and LHC III (2211) are sent to a common header and used to neutralize excess HCl coming from solvents and Vinyl II area. This stream is normally sent there except in the event of a shut down at solvents. Then the stream will go to the effluent canal near the respective treatment system. In addition, the proprietary benzene removal treatment system will be designed to be able to treat the combined LHC by-product alkalinity streams in case one is being renovated or a failure occurs. It appears that regulation of these outfalls can be accomplished by deriving concentration requirements and changes of flow, caused by one treatment system accepting both streams, would not affect compliance.

The effluent limitations and monitoring requirements for Outfalls 0731 and 2211 are established for the following parameters:

125  
TOD: It is difficult to evaluate the new treatment system on the available data. However, using technology based upon activated sludge treatment a BOD<sub>5</sub> of 58 and 146 has been established in the Organic Chemical proposed guidelines. A TOD/BOD<sub>5</sub> ratio of 3 appears reasonable for non-biological treatment.  $3 \times 58 = 174$  or 200 mg/l daily average and  $3 \times 146 = 438$  or 400 mg/l daily maximum.

Oil and Grease: API separator technology is 10 mg/l 30-day average and 15 mg/l daily maximum Oil and Grease.

126  
Phenol: Steam stripping technology can reduce phenol to 0.1 mg/l average and 0.2 mg/l daily maximum. Even though biological treatment could achieve lower phenol we have determined that the above technology is appropriate.

127  
Total Purgeable Aromatics: Steam stripping, air stripping, activated carbon absorption and biological treatment have been established as technology for removal of purgeable aromatic components benzene, toluene, ethyl benzene, etc. The achievable limits are set forth in the G/L Development Document and the proposed organic chemical guidelines as follows:

Component	30-day Avg.	Daily Max.
Benzene, mg/l	.075	.125
Toluene, mg/l	.125	.225
Ethyl Benzene, mg/l	.150	.275

128  
Since all components will not necessarily be present at the same time the requirement for purgeable aromatics was established as 0.2 Avg. and 0.35 daily maximum.

129

132  
130 Naphthalene: This component was identified in the discharges and requires regulation. Very little data is available on the results of treatment technology for naphthalene. Apparently, naphthalene is effectively removed by well operated bio-systems or else it would have been encountered in the organic chemical guideline development work. For this outfall, naphthalene was considered an indicator parameter for the several polynuclear aromatics and the limits is based upon the organic chemical proposed guideline for several of those components, i.e., 0.05 mg/l maximum was rounded up to 0.05 mg/l average and 0.01 mg/l daily maximum. 13

133 Cu, Pb and Ni: These levels were established in the Inorganic Chemical Guideline Development Document. The proposed guidelines are not applicable since that rationale was based upon activated sludge technology. 134

135 The above rationale was used to establish limitations at Outfalls 2221 and 2231. These discharges are treated (first flush) stormwater and cooling tower blowdown for 2221 and excess untreated stormwater at 2231. Metals and TSS are not appropriate for these outfall requirements.

136 Area 024 Research Pilot Plant.

This area's operations change from time to time and the flow is relatively small. The technology utilized to develop the proposed Organic Chemical Guidelines were established as effluent limitations for this outfall. The permittee may discharge this effluent directly within the proposed requirements. However, if treatable quantities of pollutants are detected as BOD<sub>5</sub> or TSS, the effluent must be treated. Treatment at this location is entirely optional since the waste may be sent to the central treatment facility and meet the same limitations at that monitoring point.

138 Area 025 Catalyst Treatment.

139 The effluent from this area appears to be uncontaminated river water except that treatable levels of mercury were reported in the NPDES application. Mercury treatment technology is well established. Perhaps the most accepted technology is sulfide precipitation and filtration. This technology can achieve a 30-day average limit well within 0.05 mg/l mercury. The technology is described in the various Inorganic Chemical Effluent Guidelines Development Documents. 140

Total Suspended Solids reporting was asked for to help in the assessment of the level of effort employed in the mercury treatment system.

141 Area 026 Ethylene Carbonate Plant.

The company did not submit data for this outfall since the plant was shutdown at the time of sampling for the NPDES Application. However, this process is not anticipated to produce significant contamination with regard to priority pollutants. The product is a condensation reaction with carbon dioxide and ethylene oxide and therefore the Organic Chemical Proposed Guidelines apply via Subpart D. These requirements for BOD<sub>5</sub> and TOD were established at Outfall 2601 as BCT in accordance with 40 CFR §414.43 proposed March 21, 1983.

Dow may provide for treatment at the carbonate plant or send the contaminated effluent, if appropriate, to the central treatment facility and meet the requirements at 2001.

142

Area 027 Coal Gasification Proto Plant.

The Company converts coal, steam and oxygen to a combustible gas in a proto scale reactor unit. The unit is to be operated at various conditions to define optimum operation at various objectives.

The application indicated minor amounts of priority metals in the discharge, i.e., below treatable levels. The 1.4 MGD process and scrubber water contained, at times, treatable quantities of aromatics, phenols and polynuclear (base neutral) aromatics. The latter data showing decidedly lower contamination. Three halocarbon species ~~were reported~~ requiring regulation.

147

Halocarbons can be steam stripped to very low levels. Other treatment options are activated carbon absorption biological treatment and other physical/chemical processes. The final treated effluent should be less than 0.1 mg/l each halocarbon. The daily average and daily maximum limits are calculated:

$1.44 \times 8.34 \times 0.3 = 3.6$  or 4 lbs/day 30-day average.  
 $2 \times \text{DA} = 8$  lbs/day daily maximum.

Purgeable aromatics such as benzene, toluene and ethylbenzene can be abated with similar technology. Benzene and toluene were reported in the 2C and the limits calculated:

$1.44 \times 8.34 \times 0.25 = 3$  lbs/day daily average and 6 lbs/day daily maximum.

The Company reported 3.3 lbs/day of polynuclear aromatics in the discharge in 1981. There were 11 components detected including naphthalene. The proposed Organic Chemical Guidelines indicate several of the PNA's can be reduced to 0.05 mg/l by activated sludge technology. Activated carbon may be very effective for these components. Since the new data indicate substantial reduction in raw waste load and base neutral analytical method is expensive, the PNA limits of 3 lbs/day daily average on a 1/Month frequency was established by 402(a)(1). However, naphthalene will be monitored on a weekly basis.

148 Area 29 Coal Pile Storm Runoff

Standards for regulation of coal pile runoff were promulgated in the Steam Electric Power Plant Effluent Guidelines in 40 CFR 5423 on November 19, 1982. Total Suspended Solid's requirement was established not to exceed 50 mg/l except that any untreated overflow from facilities designed, constructed and operated to treat the coal pile runoff which results from a 0000 year, 24-hour rainfall event shall not be subject to the limitations in 5423-05(k).

150 Area 029 Old Tank Farm Scrubber Water and Storm Runoff.

The NPDES application shows treatable quantities of priority pollutants, chloroform, 1,2-dichloroethane, tetrachloroethylene and minor amounts of other purgeable halocarbons. The other parameters appear to reflect uncontaminated storm runoff.

Technology is available to reduce these priority pollutants well below the mg/l range reported in the application by physical/chemical treatment. For example, steam/air stripping or activated carbon technology is described in the Organic Chemical Development Document and is addressed earlier in this fact sheet. The proposed effluent standards in 40 CFR §414.54 were utilized to establish the effluent limitation in the proposed permit. Since the flow is not continuous the monitoring frequency is 1/day or 1/week when flowing for TOC, Oil and Grease, and pH for the former and the priority pollutants the latter frequency.

152 Are 030 Northwest Landfill Stormwater Runoff. 15)

153 The northwest landfill area is the disposal site of the refuse and wastes from the cell maintenance area. These materials are stored in containers placed in sites which conform to the State of Louisiana Hazardous Waste Regulations. The principal constituent is asbestos.

154 The permittee reported in the application that all priority pollutants were believed absent except for Chromium and Copper. Analysis for these components showed them to be well below technologically treatable levels.

155 The normal stormwater requirements of TOC, Oil and Grease and pH were established for regulating this discharge. Asbestos was not regulated for three important considerations: 1) the analytical method requires an electron microscope and is expensive and time consuming; 2) Total Suspended Solids interfere with the detection limit, e.g., 50 mg/l TSS detection limit is several million fibers per liter; and 3) domestic water supply plants remove TSS to less than 10 mg/l and therefore most asbestos is removed in the water treatment process.

Recognition of the fact that the asbestos is contained in an approved landfill, i.e., clay lined and properly capped, airborne transport from the active site is the only potential source of migration. We therefore expect very little asbestos in the stormwater drainage outside the active disposal sites.

Outfalls 002 Through 008 - Stormwater Drainage to Bayou Bourbeaux.

157 LDNR identified several stormwater point sources which discharged to Bayou Bourbeaux. Bayou Bourbeaux flows in a general westward direction to Bayou Grosse Tete. This receiving stream is in Segment 1201 of the Terrebonne Basin. The segment has been designated Effluent Limited (EL), i.e., any segment in which water quality standards are being met and will continue to meet applicable water quality standards or where there is adequate demonstration that water quality will meet applicable standards after the application of effluent limitations required by the Clean Water Act as amended.

These discharges are comprised of area stormwater drainage fairly remote from process areas and the possibility of contamination is anticipated to be infrequent. The Region 6 traditional stormwater requirements of 50 mg/l maximum Total Organic Carbon, 15 mg/l maximum Oil and Grease and pH of 6.0 to 9.0 standard units were established for these discharges. These limitations represent maximum limitations for uncontaminated stormwater. 158



This does not imply that the stormwater discharges do not contain process contaminants, although the permit authorizes discharge of process pollutants exclusively out of Outfall 001. Incidentally, fugitive or other unintentional contaminants may be discharged provided the discharge complies with the terms of the NPDES Permit.

10. The requested variance(s) appear justified for the following reason(s):

N/A.

11. The permit is in the process of certification by the State agency. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers, and to the Regional Director of the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service, prior to the publication of that notice.

12. The public notice describes the procedures for the formulation of final determinations.

COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
FINAL OUTFALL 001

COMMENT NO. 1, PAGE 2, PART I, SECTION A, DRAFT PERMIT

As one of the parameters to be measured, Flow -  $m^3/day$  (MGD) must be reported on a continuous basis. Continuous measurement is an unnecessary requirement and serves no useful environmental purpose over the flow measurement requirements at the final outfall in the existing permit. Moreover, to convert to continuous flow measurement would be exceptionally expensive given the consequent benefit to be derived.

Justification

Currently, the flow at Final Outfall 001 (formerly 021) is a calculated number based on the number of pumps operating, their design capacity, and pump running time. Since the Draft Permit places limitations on the flow and discharge of pollutants at a myriad of upstream points expressly in response to a perceived problem of analytical sensitivity at the final outfall, it makes no environmental sense to measure the flow more precisely at final outfall than it is currently being measured.

Even considering the requirement in Part III, Item 9, Page 126 of the draft permit of undertaking a remedial program if analysis at Final Outfall 001 indicates a 25% exceedance in TPH, TPA and phenol of the combined daily maximum requirements upstream, imposition of a more precise flow measurement at Outfall 001 is not warranted due to the unworkability of the 25% exceedance calculation as is discussed in detail in Dow's Comments to Parts II and III of the Draft Permit. Accordingly, we request the following changes.

Requested Changes to the Draft Permit

Change the flow measurement requirement for Outfall 001 from "continuous" to --- estimate ---.

REQUESTED MINOR CHANGES TO DRAFT PERMIT

1. Change the designation of "...outfall 001" to --- Final Outfall 001 --- so as to clearly differentiate this outfall from upstream internal outfalls which are not final discharge points from Dow's facility.

**PROCESS AREA**

## FINAL DIVISION

Outfall

001

**DMR DATA**

**JANUARY, 1983 THROUGH JULY, 1984**

La Division Outfall (021)

[illegible]

## PART I

Page 2 of 127  
Permit No. LA0003301

PART I  
REQUIREMENTS FOR NPDES PERMITS

FINAL

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - Outfall 001

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 001, combined process, utility and storm runoff from the Division Return canal system to the Mississippi River.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Temperature, °F	N/A	N/A	Report	Report
Total Residual Chlorine	Report	Report	N/A	N/A
Total Purgeable Halocarbons	Report	Report	N/A	N/A
Total Purgeable Aromatics	Report	Report	N/A	N/A
Phenols	Report	Report	N/A	N/A
Biomonitoring	N/A	N/A	N/A	N/A

<u>Effluent Characteristic</u>	<u>Monitoring Requirements</u>	
	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day(MGD)	1/Day	Based on Pump Hours
Temperature, °F	Continuous	Record
Total Residual Chlorine	Continuous	Record
Total Purgeable Halocarbons	1/Day	Grab
Total Purgeable Aromatics	1/Month*	24-Hour Composite
Phenols	1/Month*	24-Hour Composite
Biomonitoring	1/Month*	24-Hour Composite
	(See Part III)	24-Hour Composite

\*See Part III, 9.

PART I

Page 3 of 127  
Permit No. LA0003301

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored continuously and recorded (See Part III).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 001; the monitoring point for pH shall be in the sampling drum which receives water from all pumps which pump the discharge from the Divison Return Canal System to the Mississippi River. The residence time of water in this sampling drum will reflect the instantaneous pH of the combined flow, i.e., the holdup in the vessel shall be less than 15 minutes.

COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
CHLORINATED POLYETHYLENE  
(CPE) PROCESS AREA 100

COMMENT NO. 1: PAGE 5, LINE 2, FACT SHEET

The "back-up" oxygen demand parameter of COD is unnecessary and redundant in view of existing TOD monitoring which has always been a reliable indicator of oxygen demand.

Justification

For process area 100, the Agency states that a "back-up" oxygen demand parameter of COD is necessary. However, it is not made a requirement in the permit itself. Hence, the permittee considers that there is no permit condition requiring a second or "back-up" oxygen demand parameter. In any event, the permittee contends that a "back-up" oxygen demand parameter is totally unnecessary, unwarranted and will not enhance environmental control assurance because as TOD has been and will continue to be monitored per the existing permit; this provides a reliable and excellent indicator of oxygen demand from this process area. Hence the Fact Sheet requirement for a "back-up" oxygen demand parameter should be deleted to clarify what is being required in the permit per se and deleted as serving no environmental purpose.

Requested Changes to the Fact Sheet

Eliminate mention of the "back-up" oxygen demand parameter in the Fact Sheet and require the continued use at the TOD oxygen demand parameter as indicated in the draft permit, Page 4. ?

COMMENT NO. 2, PAGE 4, DRAFT PERMIT

The draft permit TOD and TSS discharge limitations are intended to continue those of the existing permit but are set 50% low due to an oversight in the draft permit failing to account for a 100% increase in production beginning October 1, 1980.

A compliance schedule is essential in order for permittee to meet the TSS limitation for the reasons given below:

Justification

The discharge limitations for total oxygen demand and total suspended solids are 50% low because the permit writer apparently misinterpreted the existing permit. Page 5 of the fact sheet states that the BPT conditions of this outfall are considered BCT; therefore, TOD and TSS are continued at the following discharge limitations:

TOD DMR DATA  
"10/80 - 4/84"

$n = 42$   
 $\bar{x} = 264 \pm 136$   
95%ile = 530  
99%ile = 580  
CV = 51%

Time out of compliance with new permit over period of 10/80 - 4/84

avg	max	avg	max
13	17	60 - 858	143 - 2162

Range for period 10/80 - 4/84

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 2

	<u>Daily Avg (lb/day)</u>	<u>Daily Max (lb/day)</u>
TOD	300	600
TSS	385	770
	$\frac{\times 2}{770}$	

However, the permit writer failed to account for the change in discharge limitations that became effective October 1, 1980. This had the effect of doubling the BPT (hence the BCT) permit limits in order to reflect the new BPT conditions for this outfall. (See the attached existing permit Page 2).

Therefore, the new discharge limitations should actually be doubled as follows:

	<u>Daily Avg (lb/day)</u>	<u>Daily Max (lb/day)</u>
TOD	600	1200
TSS	770	1540

In the existing (BPT) permit, the permitted levels are indicated as "discharge characteristics" and the daily results from this internal outfall were summed with three other plants, LEC I, Vinyl II and Environmental Operations for compliance purposes.

The proposed permit has eliminated the sum and placed specific limitations on each of the previously summed internal outfalls. This results in the need to install additional TSS treatment in order for the permittee to comply. The installation of such additional control technology can not be completed and proof-tested before December, 1986. } *This is needed*

Requested Changes to the Draft Permit

Prior to December 31, 1986, for Internal Outfall 101, the discharge limitations in the proposed permit should be doubled for TOD to coincide with the existing permit. The total suspended solids limitations should be deleted with TSS "report" only being required until the additional TSS control technology is installed and proved as indicated below.

TSS DHR DATA  
10/80 - 4/84

$n = 42$   
 $\bar{x} = 645 \pm 471$   
95%ile = 1569  
99%ile = 1743  
CV = 73%

Range for period      avg      max  
108 - 1618      604 - 16860

Time out of compliance with proposed permits  
avg      max  
25      38

EXISTING PERMIT

**A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from outfall(s) serial number(s) 001, process wastewater from the manufacture of chlorinated polyethylene.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u> kg/day (lbs/day)		<u>Typical Discharge Characteristics</u> kg/day (lbs/day)		<u>Monitoring Requirements</u>	
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day (MGD)	N/A	N/A	N/A	N/A	Continuous	N/A
*TOD	N/A	N/A	136(300)**	272(600)**	Daily	24-hr composite
*TSS	N/A	N/A	175(385)**	350(770)**	Daily	24-hr composite
Acidity/Alkalinity	N/A	N/A	N/A	N/A	Daily	24-hr composite

\* These parameters shall be limited according to Part III.A.

\*\* Beginning October 1, 1980 the TOD and TSS limitation will increase to twice the above values. See Part III.A.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
at the location labeled 001 on the attached map.



NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 3

	<u>Daily Avg</u>	<u>Daily Max</u>
Flow (Continuous)	Report	Report
TOD (lb/day)*	600	1200
TSS (lb/day)*	Report	Report

\*Sampling frequency - once/week

Note: See previous 18 months of data based on DMR.

After December 31, 1986, the TSS discharge limitations in the proposed permit should be doubled to coincide with the existing permit as follows:

	<u>Daily Avg</u>	<u>Daily Max</u>
Flow (Continuous)	Report	Report
TOD (lb/day)	600	1200
TSS (lb/day)	770	1540

OK

The TSS limitations after this date reflect completion and proof-testing of additional TSS control technology.

COMMENT NO. 3, PAGE 4, DRAFT PERMIT

The TOD and TSS sampling frequency should be reduced from once per day to once per week.

Justification

Until the TSS capital project work is complete (on or before December, 1986), the permittee will be unable to comply with the proposed TSS discharge limitations stated in Comment No. 2 and it would serve no purpose to collect data on such a daily basis as proposed in the draft permit.

After the capital project is complete, the permittee expects that the TSS discharges will consistently be in compliance with the requested discharge limitations.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 4

TOD discharges are currently monitored in our existing permit for Internal Outfall 101. The results of the past 17 months are as follows:

	<u>TOD</u> <u>Avg lb/day</u>	<u>TOD</u> <u>Max lb/day</u>
<u>1983</u>		
January	162	364
February	243	531
March	280	675
April	426	880
May	385	724
June	410	761
July	264	633
August	211	526
September	349	677
October	424	2162
November	301	507
December	279	541
<u>1984</u>		
January	387	580
February	294	568
March	296	515
April	316	1202
May	<u>251</u>	509

Average 310 lb/day

It should be carefully noted that the incoming clarified river water alone contributes 205 lb/day average TOD to the load discharged by this plant (using an average flow of 1.76 MGD and incoming TOD concentration of 14 mg/l). The CPE Plant contributes an average TOD of only 105 lb/day or 7.2 mg/l.

The consistency of the previous 17 months data and the minor amounts of TOD load generated by the CPE Plant in excess of the incoming clarified river water should be justification to reduce the TOD frequency from the proposed once per day sample to a once per week sampling frequency.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 5

Reducing the frequency for the TOD and TSS parameters would be consistent with other permits in the Region VI area and at the same time allowing a reasonable sampling frequency to demonstrate that the treatment system is operating properly.

Requested Changes to the Draft Permit

The TOD and TSS sampling frequency should be reduced from once per day to once per week. OK

COMMENT NO. 4, PAGE 4, DRAFT PERMIT

The requested TOD limitation of 600 lb/day average and 1200 lb/day maximum should be changed to a net TOD limitation of 600 lb/day average and 1200 lb/day maximum. Note: This is the only internal outfall where the permittee is requesting application of a net TOD parameter.

Justification

The incoming TOD of 205 lb/day in the clarified river water accounts for 66% of the average total TOD load from this plant, see Comment #3 - Area 100.

This incoming TOD also accounts for over 33% of the requested daily average limitation.

Since the incoming TOD is a significant portion of the requested TOD discharge limitation of 600 lb/day average and 1200 lb/day maximum, it is appropriate to utilize a "net" TOD.

These facts should justify the need to incorporate a net allowance into the permit for TOD.

Requested Changes to the Draft Permit

The draft proposed "TOD" parameter for Internal Outfall 101 should be changed to a --- NET TOD --- parameter which avoids counting so-called background TOD as part of the TOD limitation imposed at this outfall. The requested net TOD discharge limitations should be 600 lb/day average and 1200 lb/day maximum.

600 lbs/d  
x 60mg/l TOD

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 6

COMMENT NO. 5, PAGE 4, DRAFT PERMIT

Total residual chlorine analysis should be deleted.

Justification

The proposed permit establishes a total residual chlorine discharge limitation of 2 mg/l daily maximum concentration and reporting requirements daily average and daily maximum mass discharges.

The following data constitutes TRC sampling at the draft proposed Internal Outfall 101:

<u>Date</u>	<u>Conc.</u> <u>mg/l</u>	<u>Mass*</u> <u>lb/day</u>	<u>Date</u>	<u>Conc.</u> <u>mg/l</u>	<u>Mass*</u> <u>lb/day</u>
4/10/84	< 1	< 15	5/4/84	< 1	< 15
4/11/84	< 1	< 15	5/5/84	< 1	< 15
4/12/84	< 1	< 15	5/8/84	< 1	< 15
4/13/84	< 1	< 15	5/16/84	< 1	< 15
4/14/84	5.4	79.3	5/17/84	< 1	< 15
4/15/84	3.6	52.8	5/18/84	< 1	< 15
4/16/84	3.6	52.8	5/19/84	3.9	57.2
4/17/84	1.8	26.4	5/20/84	5.3	77.8
4/18/84	< 1	< 15	5/21/84	< 1	< 15
4/19/84	< 1	< 15	5/27/84	< 1	< 15
4/20/84	< 1	< 15	5/28/84	< 1	< 15
4/21/84	< 1	< 15	5/29/84	< 1	< 15
4/22/84	< 1	< 15	5/30/84	< 1	< 15
4/23/84	1.3	26.4	5/31/84	< 1	< 15
4/24/84	< 1	< 15	6/1/84	< 1	< 15
4/25/84	3.6	52.8	6/5/84	< 1	< 15
4/26/84	5.3	77.8	6/6/84	< 1	< 15
4/27/84	< 1	< 15	6/7/84	< 1	< 15
4/28/84	< 1	< 15	6/8/84	3.6	58.2
4/29/84	< 1	< 15	6/11/84	< 1	< 15
4/30/84	< 1	< 15	6/12/84	< 1	< 15
5/1/84	< 1	< 15			
5/2/84	< 1	< 15			
5/3/84	< 1	< 15			

\*Calculated assuming measured grab concentration present for 24 hours.

The CPE Plant uses approximately 175,000 lb/day chlorine in the CPE reactors. This chlorine is reacted to either HCl or CPE and a very insignificant amount is discharged unreacted, as seen in the above

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 7

data. In fact, even if 100 lb/day of residual chlorine is discharged, this calculates to a 99.94% efficiency for chlorine reduction by the reaction in this process.

Total residual chlorine was addressed as a pollutant of concern in the inorganic guidelines development document because of toxicity of chlorine to aquatic life. Previous experience indicates that the above concentrations of TRC are consumed by the natural demand of the return water and no aquatic toxicity has occurred even when considering all combined TRC discharges from the entire Division discharge, much less the minimal amounts discharged from this internal outfall.

The cost of treatment to control TRC from Internal Outfall 101 can not be justified to remove such small inconsistent mass discharges that are naturally consumed with no aquatic harm.

Requested Changes to the Draft Permit

The permittee requests that the discharge limitations of 2 mg/l daily maximum for TRC on Internal Outfall 101 be deleted, and the TRC analysis should be conducted once per week with the results being "reported" only. Reporting this data will provide a documented data base which the EPA could utilize for long-term consideration of performance.

COMMENT NO. 6, PAGE 4, DRAFT PERMIT

The once-through cooling water (OTCW) is being segregated from Internal Outfall 101 and should be identified as a second permitted internal outfall for Area 100.

Justification

The permittee plans to segregate the OTCW from the process water by diverting it away from the Internal Outfall 101. This segregation will improve the efficiency of our existing settling pond by greatly reducing the water velocity, allowing more solids to settle. When flowing, the OTCW will be 1 MGD or less.

This OTCW is used to cool the glass-lined CPE reactors. To contaminate the OTCW, two things must happen:

1. The glass lining would have to break, and then
2. The acid in the reactor would have to corrode through the metal that provides support to the liner.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CPE (AREA 100)  
PAGE 8

To eliminate a total reactor failure, plant policy dictates that each batch of CPE must be inspected for evidence of the blue glass liner that would indicate a problem. The probability of OTCW contamination is extremely remote given these conditions.

Requested Changes to the Draft Permit

Add the OTCW as a second permitted outfall for the Area 100 and require only a flow characteristic, estimated when flowing. The OTCW will discharge to the north side of CPE to the Division return system.

GENERAL COMMENTS/REQUESTS

1. "Outfall 101" should be identified as "Internal Outfall 101".
2. The pH frequency should be changed to "N/A".
3. Flow on once-through cooling water should be measured only once per month since this flow seldom changes and no mass limits are calculated based on this flow. Flow is to be estimated by using the flow meter value of the incoming water and subtracting the measured water flow of Internal Outfall 101.

PROCESS AREA CPE 100

DNR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - CPE 001							
	Flow	MCD		TOD	#/d	TSS	#/d
1983	Ave.	Max		Ave	Max	Ave	Max
JAN	.87	1.28		162	364	191	883
FEB	1.41	1.85		243	531	411	930
MARCH	1.48	1.92		280	675	580	5658
APRIL	1.75	2.27		426	880	375	1274
MAY	1.95	2.41		385	724	529	2793
JUNE	1.97	2.39		410	761	911	7630
JULY	1.84	2.80		264	638	249	936
AUG	2.15	2.74		211	526	281	859
SEPT	2.15	2.52		349	677	914	4221
OCT	1.93	3.09		424	2162	670	1911
NOV	1.32	1.79		301	507	1426	14351
DEC	1.54	3.21		229	541	654	3132
1984							
JAN	1.63	2.41		387	580	1209	3666
FEB	2.16	2.60		244	568	821	2263
MARCH	1.80	2.39		296	515	345	730
APRIL	1.64	2.53		316	1202	402	1963
MAY	2.27	3.31		251	509	530	1505
JUNE	2.52	3.20		399	861	601	1341
JULY	2.67	3.37		395	732	693	2277
AUG.	2.32			368		637	
				21mm		42mm	

## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS <sup>INTERNAL</sup> ~~A~~ Outfall 101 AND III

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 101, process wastewater from the manufacture of chlorinated polyethylene; AND III ~~ONCE THROUGH COOLING WATER~~

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic

	Discharge Limitations			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD) **	N/A	272(600)	545(1200)	Report
Total Oxygen Demand *	136(300)	272(600)	N/A	Report
Total Suspended Solids (TSS) *	175(385)	349(770)	N/A	N/A
Total Residual Chlorine	Report	Report	N/A	2(mg/l) N/A
	350(770)	700(1540)		

Effluent Characteristic

		Monitoring Requirements	
		Measurement	Sample
Flow-m <sup>3</sup> /Day(MGD) III		Frequency	Type
		1/MONTH	INCOMING PROCESS WATER - FLOW AT 101
Total Oxygen Demand	1/WEEK	Continuous	Indicate
Total Suspended Solids (TSS)	1/WEEK	Daily	24-Hour Composite
Total Residual Chlorine		Daily	24-Hour Composite
		1/Week	Grab

\* REPORT FLOW, TOD, & TSS ONLY UNTIL 1-1-87 ON INTERNAL  
OUTFALL 101

\*\* FLOW ONLY REQUIRED ON INTERNAL OUTFALL III

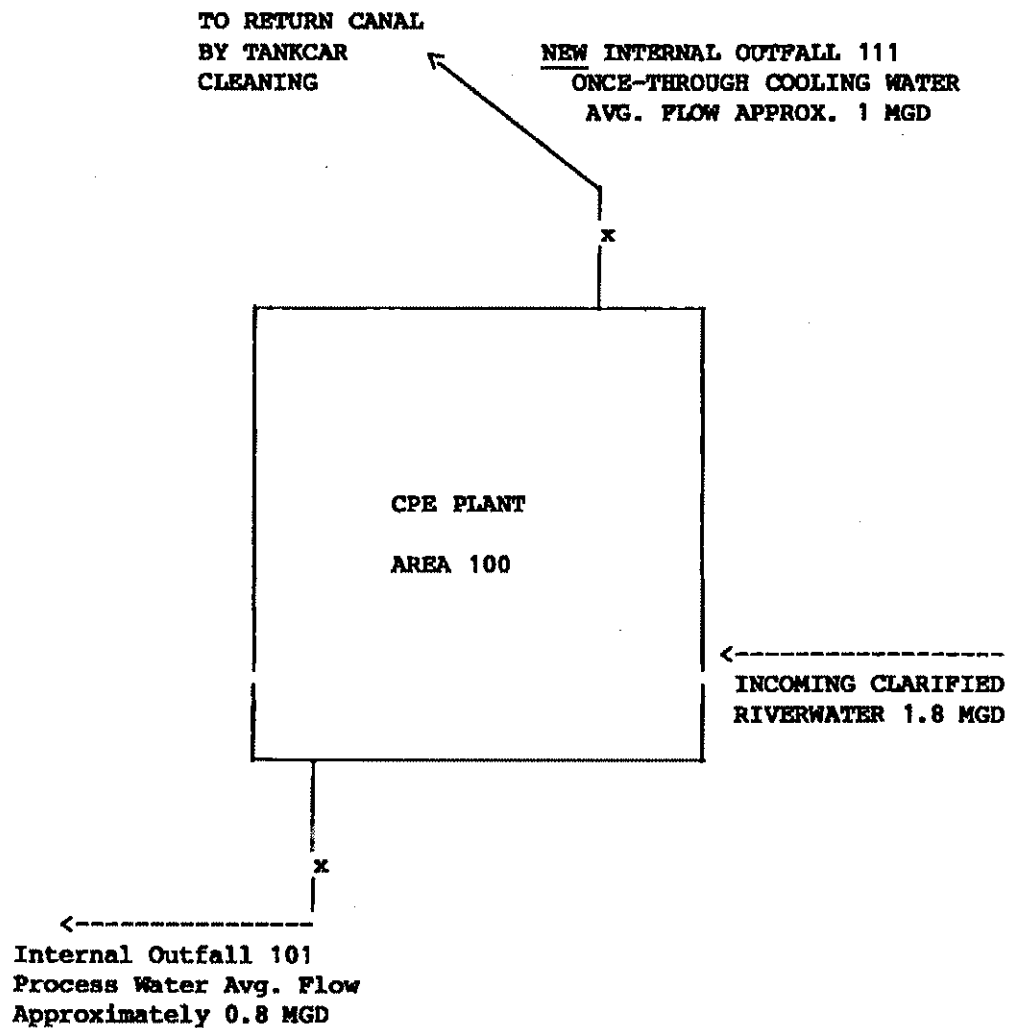


The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~17/day~~ <sup>N/A</sup> via grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 101; Southwest corner of block 19, discharge of settling pond.

BLOCK FLOW DIAGRAM  
AFTER DECEMBER, 1986



COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
CELLULOSE PROCESS AREA 200

COMMENT NO. 1, PAGE 6, DRAFT PERMIT

For Internal Outfall 211, the net TOD discharge limitation of 5 mg/l should be deleted and a 100 mg/l TOD discharge limitation should be applied. The mass "report" requirements should also be deleted.

Justification

The proposed permit places a net TOD discharge limitation of 5 mg/l and mass "report" requirements on Internal Outfall 211.

A net 5 mg/l TOD limitation is totally inappropriate for this internal outfall since Mississippi River water, which is being used for cooling, has a TOD itself close to the limit of determination of 10 mg/l. Hence, the analytical accuracy of the TOD test makes a net 5 mg/l TOD limitation meaningless. Data submitted at our Dallas meeting on June 25, 1984 for the Light Hydrocarbon II Plant for December, 1983 show the inlet TOD varying from below the limit of detection (BLD) to a high of 36 mg/l. Comparing the inlet vs. outlet cooling water data, it can be seen that there is a loss of as much as -44 mg/l TOD on a given day to a gain of +16 mg/l. The data shows six days in December where there would have been permit violations using the net TOD limitation as proposed in the permit due to inlet-outlet variability inasmuch as there is no evidence to indicate that there were any leaks into the cooling water system during this period.

At the June 25, 1984 meeting with EPA, the permittee suggested the possible alternative of using a net TOC limit of 5 mg/l. The permittee agreed to collect net TOC data to see if meaningful data could be generated. This data has been collected, giving the following results:

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CELLULOSE (AREA 200)  
PAGE 2

<u>Date</u>	<u>TOC mg/l incoming River Water</u>	<u>TOC mg/l at proposed 211 Outfall</u>	<u>Net TOC mg/l</u>
7/5/84	12	15	+3
7/6/84	6	17	+11
7/9/84	13	9	-4
7/10/84	18	9	-9
7/11/84	5	10	+5
7/12/84	7	12	+5
7/14/84	6	16	+10
7/15/84	6	12	+6
7/16/84	9	12	+3
7/25/84	8	9	+1

These results demonstrate that the analysis changed from a +11 mg/l net TOC to a -9 mg/l net TOC which created suspicion as to the variability of just the incoming river water. This concern prompted the following data on the incoming river water within a one-hour time period.

<u>Date</u>	<u>Time</u>	<u>TOC mg/l Incoming River Water</u>
7/18/84	4:08 P.M.	6.9
	4:14 P.M.	10.3
	4:20 P.M.	9.7
	4:26 P.M.	4.8
	4:32 P.M.	6.0
	4:38 P.M.	5.4
	4:44 P.M.	5.6
	4:50 P.M.	4.6
	4:56 P.M.	5.5
	5:02 P.M.	6.2

These results confirm the variability of the incoming river water prior to its use within the Division. Within only a 36-minute time frame, the incoming TOC dropped from 10.3 mg/l to 4.6 mg/l resulting in a net TOC of -5.7 mg/l.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CELLULOSE (AREA 200)  
PAGE 3

These two sets of data show that even a 5 mg/l net TOC discharge limitation is meaningless and extremely difficult to interpret and relate to process contamination.

The permittee believes a logical approach to address the concern of once-through cooling water (OTCW) contamination is to set a 100 mg/l TOD discharge limitation on the OTCW effluent. This limit will insure that the permittee is monitoring the OTCW on a daily basis to detect potential contamination and at the same time it eliminates the uncertainties and variability associated with the net TOD or net TOC discharge limitations.

TOD measurements through the years on the incoming river water indicate that levels from <10 mg/l to 65 mg/l have been measured. The 100 mg/l is a level which could be used reliably to detect a leak. The "report only" requirements for pounds per day net TOD are also unnecessary and should be eliminated based on the previous discussions and the conclusions that net TOD is essentially meaningless.

Requested Change to the Draft Permit

Change the "net TOD" discharge limitation of "5 mg/l" to a "TOD" discharge limitation of "100 mg/l" on Internal Outfall 211. Also, delete the "reporting" of daily net TOD mass losses.

COMMENT NO. 2, PAGE 6, DRAFT PERMIT

Change the flow requirements from "continuous" to "estimate" for Internal Outfalls 211 and 221.

Justification

The proposed permit requires continuous flow measurement for Internal Outfall 211. Since this outfall involves a large continuous once-through cooling water flow with a discharge limitation specified in terms of concentration, this flow requirement should be changed to a "once a day estimated flow".

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CELLULOSE (AREA 200)  
PAGE 4

For Internal Outfall 221, the proposed permit requires "continuous" flow measurement, when flowing. Since this internal outfall has an intermittent flow due to storm water and discharge limitations specified in terms of concentration, this flow measurement should be changed to a "daily estimated flow" when flowing. This is consistent with Internal Outfall 441, which involves a similar type discharge stream.

Requested Change to the Draft Permit

Change the flow monitoring requirement from "continuous" to "estimate" on Internal Outfalls 211 and 221.

COMMENT NO. 3, PAGE 6, DRAFT PERMIT

The monitoring requirement for a "24-hour composite" sample on Internal Outfall 221 should be changed to a "grab" sample. In order to accommodate for the fluctuation in flow.

Justification

The monitoring requirements on Internal Outfall 221 specify a 24-hour composite sample. As previously mentioned, this flow will be intermittent depending on the quantity of rainfall. This makes a 24-hour composite sample impractical and difficult to maintain. Since this stream is storm water runoff, the TOD monitoring requirement should be changed to a once a day "grab" sample, when flowing. This is consistent with the monitoring requirements of Internal Outfall 441, which is similar to this stream.

Requested Change to the Draft Permit

Change the monitoring requirement for Internal Outfall 221 from a "24-hour composite" to a "grab" sample.

GENERAL COMMENTS

1. "Outfalls 211 and 221" should be identified as "Internal Outfalls 211 and 221".
2. Change the pH monitoring frequency on Page 7 of the proposed permit to N/A for Internal Outfalls 211 and 221.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CELLULOSE (AREA 200)  
PAGE 5

3. Estimate flow on OTCW (811) based on pump curve and pump hours.
4. Estimate flow on 821 based on volume of collection sump discharged during the batch process.
5. In order to complete a capital project at the Cellulose Plant (see Compliance Schedule section), TOD limitation on Internal Outfall 211 should be a report only until July 1, 1985.

PROCESS AREA CELLULOSE 200

DNR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - CELLULOSE

	FLOW - MGD			TOD - GROSS			TOD INFLOW		
1983	Ave	MAX		Ave	MAX		Ave	MAX	
JAN	1.38	1.91		1174	11035		169	366	
FEB	1.71	3.34		609	3069		287	805	
MARCH	1.70	2.69		1079	6351		217	900	
APRIL	2.53	3.86		2731	19578		393	966	
MAY	2.32	3.90		1936	11056		278	632	
JUNE	1.81	3.07		639	7746		231	384	
JULY	2.32	3.17		664	8462		386	751	
AUG	2.30	4.90		759	6491		343	1198	
SEPT	2.32	2.96		830	11750		280	764	
OCT	2.25	3.02		886	9055		385	1657	
NOV	2.11	3.26		352	1231		262	462	
DEC	2.33	3.20		1352	18323		344	1420	
1984									
JAN	2.48	3.73		2524	21869		184	830	
FEB	3.14	7.28		1913	9888		255	1336	
MARCH	2.91	4.12		422	4098		189	480	
APRIL	9.60	18.02		2208	17880		318	1682	
MAY	2.82	8.93		1233	24432		280	1414	
JUNE	3.17	5.00		2424	28140		446	1664	
JULY	4.37	5.52		2082	8010		522	1004	
Aug.	3.41			1909			417		
				54m			12		



## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

**INTERNAL**  
SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - Outfalls 211 and 221

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 211 - once-through cooling water from methyl cellulose unit, 221 - treated and uncontaminated stormwater.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
<del>Net Total Oxygen Demand*</del>	<del>Report</del>	<del>Report</del>	<del>N/A</del>	<del>5 (mg/l)*</del>
<b>TOTAL OXYGEN DEMAND**</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>100 mg/l*</b>
Total Oxygen Demand**	N/A	N/A	N/A	200 (mg/l)

<u>Effluent Characteristic</u>	<u>Monitoring Requirements</u>	
	Measurement	Sample
	Frequency	Type
Flow-m <sup>3</sup> /Day(MGD)	<b>211</b> 1/DAY	<b>ESTIMATE BASED ON PUMP CURVE</b>
	<del>Continuous</del>	<del>Indicate</del> <b>AND PUMP HOUR</b>
<del>Net Total Oxygen Demand</del>	<b>221**</b> 1/day	<b>ESTIMATE BASED ON VOLUME</b>
	Daily	Grab <b>OF COLLECTION SUMP</b>
TOD	Daily**	<del>24 Hour Composite</del> <b>GRAB</b>

\*Net TOD limit applies to OTCW at 211.

\*\*When 221 is flowing. Report TOD only until ~~December 31, 1984.~~

July 1, 1985

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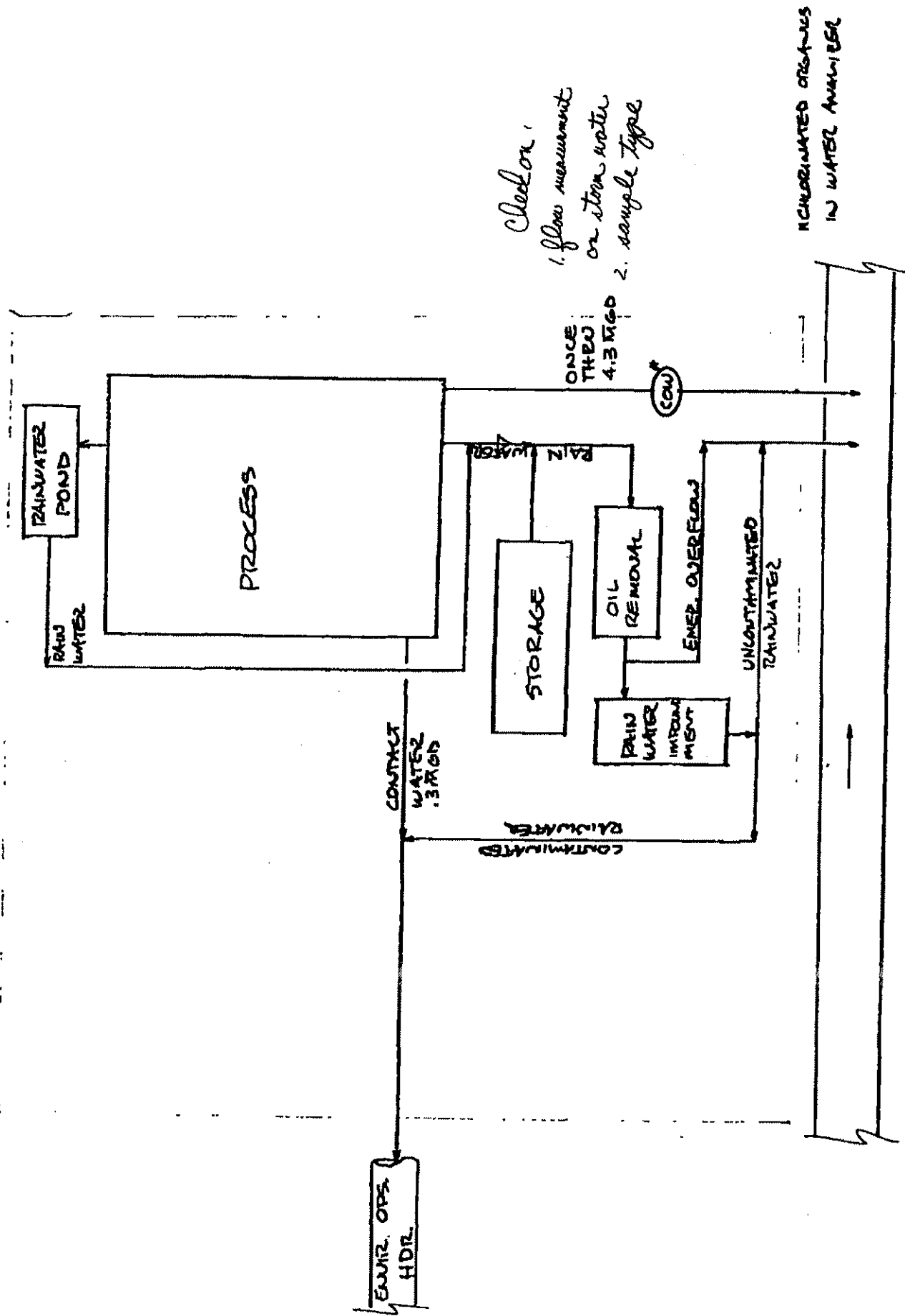
The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~1/day~~ via grab sample.  
N/A

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 211, once-through cooling water; 221 treated and uncontaminated storm runoff.

disclosure (002)

(AFTER MAX CAPITAL PROJECT COMPLETION)



COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
CHLOR-ALKALI II, CHLORINE AND CAUSTIC PLANTS OUTFALLS  
PROCESS AREA 300

COMMENT NO. 1: PAGE 8 AND 10, DRAFT PERMIT

Based on more recent data than that used on the Form 2C permit application, the total purgeable halocarbon limitation on Internal Outfalls 311 and 321 should be deleted.

Justification

The Agency appropriately used the permit application Form 2C as justification for the application of total purgeable halocarbon limitations on Internal Outfalls 311 and 321. The application data did indicate high levels of total purgeable halocarbons and also high levels of total residual chlorine. At the time that the samples were taken, all of the sources of TPH and residual chlorine had not been collected for treatment which accounts for the high levels. This table summarizes the 1979 data submitted in the permit application:

<u>Outfall</u>	<u>Total Purgeable Halocarbons</u>	<u>Total Residual Chlorine</u>
311	38.7 lb/day	955 lb/day
321	159.4 lb/day	19,067 lb/day

It should be noted that since the permit application was submitted both the CA II Plant and the Chlorine Plant have installed sodium thiosulfate systems to reduce or eliminate residual chlorine losses. In addition, the Chlorine Plant designed and installed a system to collect chlorinated wastes so that they might be incinerated.

As a result of the success of these two projects, 1) elimination of chlorinated heavies and 2) control of residual chlorine, the total purgeable halocarbon losses have been dramatically reduced in both of these plants. The following data is indicative of current losses.

*Chlorine Plant*  
*Check:*  
*1. flows 0030+003C*  
*2. identify types of flows*  
*3. TSS*

NPDES PERMIT, COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 2

CA II Plant Internal Outfall 311

<u>Date</u>	<u>TPH*</u> <u>lb/day</u>	<u>Residual**</u> <u>Chlorine</u> <u>lb/day</u>	<u>Date</u>	<u>TPH</u> <u>lb/day</u>	<u>Residual**</u> <u>Chlorine</u> <u>lb/day</u>
4/29/84	0.4	<14	6/4/84	0	<14
5/2/84	3.1	23	6/5/84	0	<14
5/3/84	3.6	<14	6/6/84	0	<14
5/6/84	3.0	47	6/7/84	0	<14
5/7/84	0.5	<14	6/8/84	0	<14
5/8/84	0.1	<14	6/9/84	1.7	<14
5/10/84	0.1	<14	6/10/84	0	<14
5/15/84	0	<14	6/11/84	0	<14
5/16/84	0.1	<14	6/12/84	0	<14
5/17/84	0.1	<14	6/13/84	0.1	<14
5/19/84	0.1	<14	6/15/84	0	<14
5/20/84	0.1	<14	6/16/84	0	<14
5/21/84	0	<14	6/17/84	0	<14
5/22/84	0	<14	6/18/84	0	<14
5/23/84	0	<14	6/20/84	0	<14
5/25/84	0	<14	6/22/84	0.1	<14
5/27/84	0.8	<14	6/23/84	0	<14
5/28/84	0	<14	6/24/84	0	<14
5/29/84	0	<14	6/29/84	0.1	<14
5/30/84	0	<14	6/30/84	0	<14
5/31/84	0.1	<14	7/1/84	0.1	<14
6/1/84	0	<14	7/2/84	0	<14
6/3/84	0	<14			

\*Composite Sample

\*\*Grab Sample - Calculation assumes measured concentration present for 24-hour period.

The make-up of the TPH are as follows:

Chloroform -	80%
Bromodichloromethane -	5%
Bromoform -	15%

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 3

Chlorine Plant Internal Outfall 321

Date	TPH* lb/day	Residual** Chlorine lb/day	Date	TPH lb/day	Residual** Chlorine lb/day
4/24/84	5.0	834	6/6/84	1.7	<100
4/25/84	3.3	<100	6/7/84	2.1	<100
5/2/84	2.1	<100	6/11/84	5.9	<100
5/6/84	3.8	<100	6/12/84	3.6	<100
5/7/84	2.2	<100	6/13/84	4.2	<100
5/28/84	1.4	<100	6/20/84	3.9	<100
5/29/84	3.2	<100	6/23/84	4.0	<100
5/30/84	1.2	<100	6/24/84	2.9	<100
5/31/84	1.5	<100	6/27/84	4.4	370
6/4/84	1.3	<100	6/29/84	1.9	334
6/5/84	1.5	<100	7/2/84	1.3	<100

\*Composite Sample

\*\*Grab Sample - Calculation assumes measured concentration present for 24-hour period.

The make-up of the TPH are as follows:

Chloroform	90%
Bromoform	5%
Bromodichloromethane	5%

As a result of this data, it is clear that the losses of total purgeable halocarbons are well below the limitations in the proposed permit. Control of the total residual chlorine in these internal outfalls which is required by the proposed permit will insure that tri-halomethane formation does not increase to levels where total purgeable halocarbons are a concern.

Requested Changes to the Draft Permit

On the basis of the data presented above which updates our Form 2C permit application, it is clear that a total purgeable halocarbon problem does not exist in Internal Outfalls 311 or 321. We request that the limitations and monitoring requirements for total purgeable halocarbons for Internal Outfalls 311 and 321 on Pages 8 and 10 of the proposed permit be deleted.

*Avg flow for chlorine plant  $\approx$  0.61 MGD*

*Proposed EPA permit for 321*

*TPH 5avg 10max*

*Analysis of above data*

*$\bar{x} = 2.83 \pm 1.37$  lbs/d TPH (90% HCCl<sub>3</sub>)*

*95%ile 5.52 lbs/d*

*99%ile 6.02 lbs/d*

*Range 1.2 - 5.9 lbs/d*

*Now proposed*

*36 avg 72 max  
4.37 mg/l HCCl<sub>3</sub>*

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 4

COMMENT NO. 2, PAGE 6, FACT SHEET

In the event that Comment No. 1 is not accepted in its entirety by the Agency, the Agency made an error in its calculations on the total purgeable halocarbons limitation and the limitations should be increased.

Justification

The third paragraph of the fact sheet states "the inorganic chemical development document was utilized to derive equitable flow rates...". This document states that the "process wastewater flow rate for a model diaphragm cell chlor-alkali plant is 8.8 m<sup>3</sup>/kkg". The "kkg" apparently refers to chlorine production. Using this model flow, the permit writer converts to a flow rate of 0.387 MGD for CA II. This means that the "daily production rate" used is:

$$387,000 \text{ gal} \left| \frac{\text{ft}^3}{7.48 \text{ gal}} \right| \left| \frac{\text{m}^3}{35.5 \text{ ft}^3} \right| \left| \frac{\text{kkg}}{8.8 \text{ m}^3} \right| = 167 \text{ kkg/day}$$

or

$$167,000 \text{ kg} \left| \frac{2.2 \text{ lb}}{\text{kg}} \right| = 367,400 \text{ lb/day chlorine production}$$

This 0.367 M lb/day chlorine rate is substantially different than the confidential production rate supplied in our August 18, 1983 correspondence (J. B. Martin to O. Cabra), which leads us to believe that a conversion error was involved for the permit writer to achieve a flow of 0.387 MGD. Dow Confidential Business Information concerning recently revised production rates is being submitted under a separate cover. This confidential information also explains the rationale used to derive the following TPH limitations:

Plant	Internal Outfall	Proposed Permit Limitations		TPH Limits Based on Rationale in the Separate Confidential Cover	
		TPH Limits			
		Average lb/day	Maximum lb/day	Average lb/day	Maximum lb/day
CA II	311	3	6	15	30
Chlorine	321	5	10	36	72

The "Chlor-alkali" guidelines do not allow a discharge of TPH based upon survey data.

Based on raw waste from graphite anode plant  $\text{ACl}_2 \approx 0.52 \text{ lbs/d}$  or average concentration of 0.085 mg/l  
AP 221 IOC

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 5

Requested Changes to the Draft Permit

In the event the Agency does not accept the Conclusion in Comment No. 1 and delete the total purgeable halocarbon limitations, then the Agency should increase those limitations as follows:

<u>Internal Outfall</u>	<u>New Limitations Average</u>	<u>TPH lb/day Maximum</u>
311	15	30
321	36	72

This request is based on the same logic used by the Agency in its proposed permit, but has corrected calculation errors made by the Agency.



NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 6

REFER TO CONFIDENTIAL INFORMATION IN SEPARATE ENVELOPE.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 7

COMMENT NO. 3, PAGE 10, DRAFT PERMIT

As a result of an increase in production capacity of the Chlorine Plant (Dow Confidential Business Information Section) it is necessary to change (increase) limitations in the proposed permit for TSS, TRC, total copper, total lead, total nickel and TPH.

Justification

The final Inorganic Chemical guidelines for Chlor-Alkali units is based on demonstrated plant capacities. With this change in demonstrated capacity of the Chlorine Plant, it is necessary to appropriately increase the permit limitations for the above mentioned parameters.

Requested Changes to the Draft Permit

Considering this new information, Dow requests that the discharge limitations for Internal Outfall 321 change to the following:

	<u>Daily Average</u> (lb/day)	<u>Daily Maximum</u> (lb/day)
TSS	2601	5610
TRC	40.3	66.3
Total Copper	25	61.2
Total Lead	12.2	30.1
Total Nickel	18.9	49.5
TPH	36	72

COMMENT NO. 4, PAGE 10, DRAFT PERMIT

Due to the high amount of TSS in the once-through cooling water, it is necessary to move the permitted point for TSS on Internal Outfall 321 to a point upstream of comingling with the once-through cooling water.

Justification

Total Suspended Solids (TSS)

Internal Outfall 321 includes approximately 14 MGD of once-through cooling water (Mississippi River water), plus the stream of clarifier underflow water which has been treated for TSS. According to the permittee's previous comment change in production capacity chlorine plant,

*Agree*

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 8

the revised TSS discharge limitations should be 2601 lb/day average and 5610 lb/day maximum. TSS data on Mississippi River water indicates that TSS concentrations can be as high as 150 mg/l. Using this concentration and the average flow of 14 MGD, the solids loading of once-through cooling water alone can be 17,514 lb/day.

$$14 \text{ MGD} \times 8.34 \text{ lb/gal} \times 150 \text{ mg/l} = 17,514 \text{ lb/day}$$

The permittee realizes that under these conditions, where a tremendous portion of the TSS loading is due to the incoming cooling water, the use of "netting" is often incorporated as allowed by 40 CFR 122.45 (h)(1)(B). However, in this particular case since the incoming TSS load is 312% of the requested maximum discharge limitation, even a very small difference in sampling technique or the EPA allowable +10% flow requirements on influent or effluent samples would often result in an unwarranted TSS non-compliance.

In order to eliminate the variability associated with the sampling and analysis of Mississippi River water, the TSS sampling should take place on the Chlorine Plant's major source of TSS.

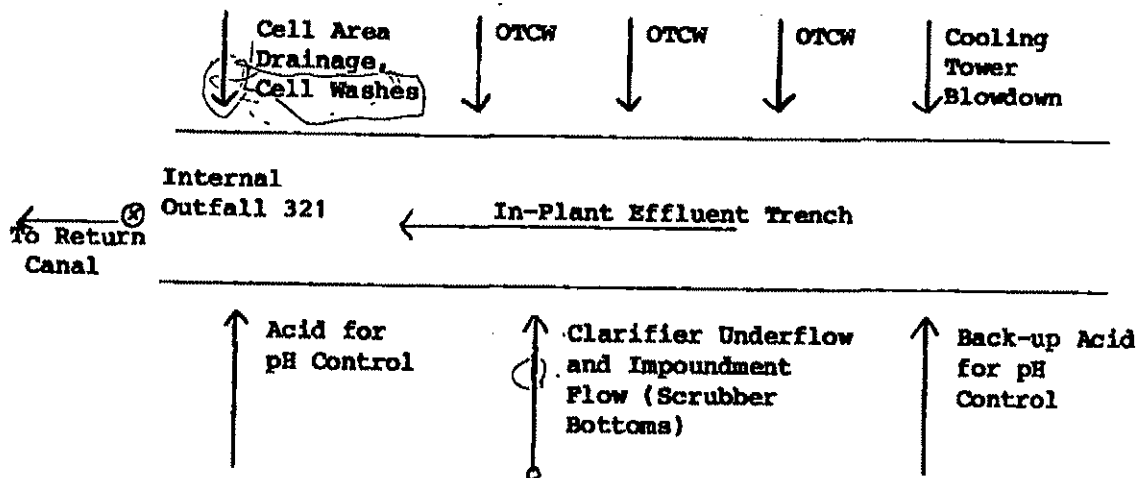
Attached is a block flow diagram showing the Chlorine Plant's discharges into its effluent trench before and after BAT project completion.

The major source of TSS loading from this chlorine production facility results in the discharge of clarifier underflow, which is the brine-treating portion of the plant designed to remove brine solids prior to the brines' use in the chlorine cells. This stream typically consists of 7500 mg/l TSS or an estimated 3600 lb/day TSS.

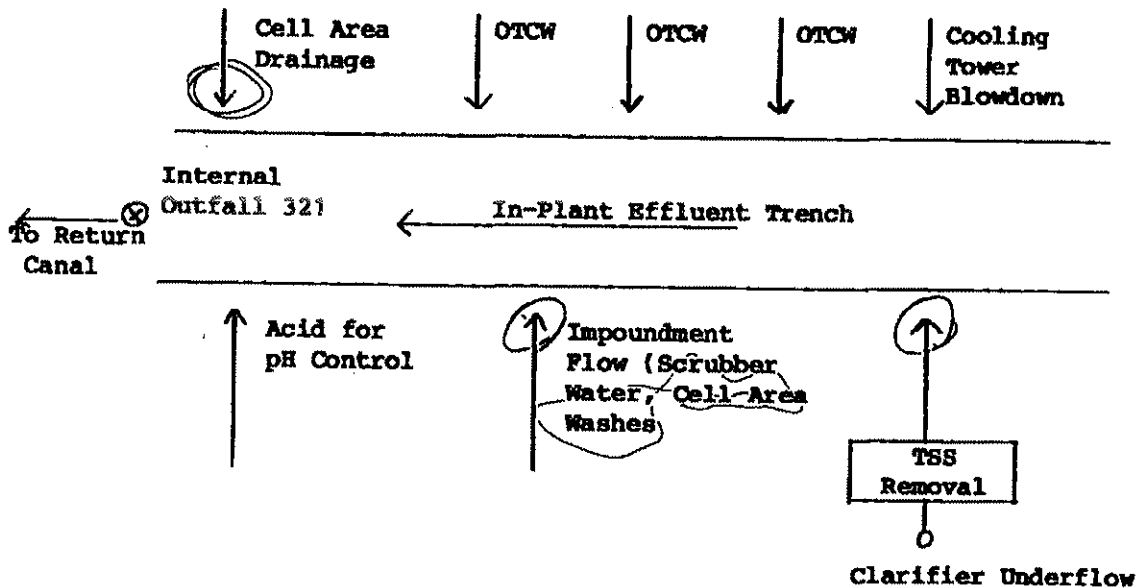
The cell area drainage consists of storm wash down water and cell wash water. This cell wash water is another source of solids that typically consists of about 360 mg/l TSS. This cell wash water is currently discharged, but after the BAT capital project completion, this stream will flow to the plant's impoundment area which will act as a large settling basin.

The impoundment area flow consists of effluent primarily from the plant's caustic scrubbers used for controlling chlorine vent emissions and the previously mentioned cell wash water. This flow must pass through a large impoundment and very little suspended solids are expected in its discharge. This impoundment flow will be treated for residual chlorine after the BAT project completion. This stream was considered an insignificant TSS load and is not included in the plant's TSS removal project.

Existing Chlorine Plant Discharges



Chlorine Plant Discharges After BAT Project Completion



NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 10

The acid for pH control will be hydrochloric acid (HCl) that only contains minute quantities of TSS.

The cooling tower blowdown will only average 10 - 13 ppm or 23 lb/day TSS.

The OTCW streams make up the remainder of this plant's effluent and as previously stated, its solids loading from the Mississippi River can be as high as 17,500 lb/day.

Based on the above facts, the TSS stream of concern is the clarifier underflow for which the permittee has designed a discreet in-line neutralization system. This system utilizes the alkalinity of the clarifier underflow's TSS to neutralize a spent acid stream. This process recycles and utilizes the TSS alkalinity and at the same time reduces the amount of cell effluent (finished product) required to neutralize the spent acid prior to its discharge.

The best approach would be to sample downstream of the neutralization system, but prior to its comingling with the plant's OTCW.

This will eliminate the numerous problems, inconsistencies, and uncertainties associated with netting out the plant's once-through cooling water, the and permittee feels that this is the most logical approach.

Requested Changes to the Draft Permit

Move the discharge limitations of 2601 lb/day average and 5610 lb/day maximum and the monitoring requirements for TSS of once a day to a point downstream of the clarifier treatment system, but prior to that stream's comingling with the once-through cooling water. The permittee feels that this will satisfy the intent of the permit writer to apply BAT guidelines and, at the same time, eliminate the unnecessary confusion associated with the use of netting. This recommendation will only involve the modification of the proposed permit to reflect such changes.

COMMENT NO. 4, PAGE 12, DRAFT PERMIT

The net TOD limitation on OTCW at Internal Outfalls 331, 341, 351, 361, and 371 should be deleted since there is no significant source of organic material in these process units.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 11

Justification

Contaminants which could possibly leak into the OTCW are limited to either hydrochloric acid or caustic soda. PH is the best indicator of these losses. TOD only responds to organic compounds which can be oxidized.

Requested Changes to the Draft Permit

Delete the net TOD limitation on Internal Outfalls 331, 341, 351, 361, and 371.

GENERAL COMMENTS/REQUESTS

1. The outfall numbering system for Area 300 is inconsistent between the fact sheet and proposed permit. In order to resolve this inconsistency, the following changes should be made:

On Page 4 of the fact sheet:

<u>Existing Outfall Number</u>	<u>Outfall Number Correction</u>
CA II	311
Chlorine	321
Rectifier Water	331
50% Caustic Evap.	341
73% Caustic Evap	351
Caustic Purification	361
Caustic Non-Contact	371

The last sentence in the same paragraph should also read "... to Internal Outfalls 311 and 321".

On Page 7 of the fact sheet:

"Outfalls 321, 331, 341, 351 and 361" should read "Internal Outfalls 331, 341, 351, 361 and 371".

2. Page 6 of the fact sheet:

"Inorganci Chemical" in paragraph 1 should read "Inorganic Chemical".

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 12

3. Page 8 of the proposed permit:

"Outfall 311" should be identified as "Internal Outfall 311".

4. Page 8 of the proposed permit:

A chromium limit was placed on Internal Outfall 311. This limitation is no longer necessary since this cooling tower is no longer using a chromium treatment. This was documented in a letter dated August 18, 1983, from J. B. Martin to Oscar Caba.

5. Biomonitoring:

Comments concerning biomonitoring are in a separate comment section titled "Biomonitoring" and in Dow's comments on Part II and III of the draft permit.

6. Page 9 of the proposed permit:

The pH monitoring requirements for Internal Outfall 311 should be deleted based upon the reasons and alternative monitoring plan listed in a separate comment section titled "pH".

7. Page 10 of the proposed permit:

"Outfall 321" should be identified as "Internal Outfall 321".

8. Page 11 of the proposed permit:

The pH monitoring requirements for Internal Outfall 321 should be deleted based upon the reasons and alternative monitoring plan listed in a separate comment section titled "pH".

9. Page 12 of the proposed permit:

"Outfall 331, 341, 351, 361, 371" should be correctly identified as "Internal Outfalls 331, 341, 351, 361, 371".

10. Page 12 of the proposed permit:

Net Total Oxygen Demand - The discharge limitations and monitoring requirements for Internal Outfalls 331, 341, 351, 361 and 371 should be deleted based upon comments made in a separate comment section titled "OTCW Net TOD".

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
CA II, CHLORINE, CAUSTIC  
(AREA 300)  
PAGE 13

11. Page 12 of the proposed permit:

The permittee requests that the monitoring requirements for a continuous recorded flow be changed to once a day estimate due to the large flows (up to 38 MGD) associated with these once-through cooling water streams.

12. Page 13 of the proposed permit:

The pH monitoring requirements for Internal Outfalls 331, 341, 351, 361 and 371 should be deleted based upon the reasons and alternative monitoring plan listed in a separate comment section titled "pH".

13. Page 8 of the proposed permit:

Chromium limitations for Internal Outfall 311 should be deleted since Cr treatment is no longer used. Losses for the previous six month period indicate less than 0.15 pounds per day Cr in this discharge.

14. Page 12 of proposed permit:

Flow of once-through cooling water will be estimated as described on the corrected permit sheets at the back of this section. Frequency of measurement should be once per month since the flows seldom change and no mass limitations are calculated from these flows.

15. Page 8 of the proposed permit:

Due to capital project construction (see Compliance Schedule section), the effective date of the TSS, copper, nickel and lead limitation on Internal Outfall 311 should be January 1, 1986.

16. Page 10 of the proposed permit:

Due to capital construction (see Compliance Schedule section), the effective date of the TSS limitation on Internal Outfall 321 should be January 1, 1986.



PROCESS AREA CA II 300

DMR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - CA II 003A					
	FLOW	MCD		CR	lb/day
1983	AVE	MAX		AVE	MAX
JAN	1.10	2.22		0.17	2.04
FEB	1.89	2.84		0.10	1.19
MARCH	2.00	3.25		0.50	1.56
APRIL	1.87	3.07		0.80	5.64
MAY	1.28	2.53		1.55	11.34
JUNE	1.25	1.60		0.78	3.17
JULY	1.27	2.45		0.31	1.81
AUG	1.44	1.83		0.49	1.85
Sept	1.90	2.78		0.29	1.75
Oct	1.49	2.29		0.32	2.18
Nov	1.55	2.18		.16	.93
DEC	1.93	3.48		.19	1.90
1984					
JAN	2.12	3.11		0.10	1.45
Feb	1.74	4.18		0.08	1.20
MARCH	1.32	2.51		0.02	0.75
APRIL	1.38	2.07		0.04	1.17
MAY	1.63	2.83		0.15	2.09
JUNE	1.38	2.40		0.09	1.00
July	1.75	2.70		0.04	1.13
Aug.	1.57			0.16	

PROCESS AREA CAUSTIC 300

DMR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - CAUSTIC 003 B						
1983	003 B				003 E	
	Flow	MGD			Flow	
	Ave	Max			Ave	Max
JAN	3.60	3.60			21.71	42.00
FEB	3.60	"			42.00	"
MARCH	3.72	"			30.73	"
APRIL	3.60	"			39.47	"
MAY	"	"			42.00	"
JUNE	"	"			"	"
JULY	"	"			"	"
AUG	"	"			"	"
Sept	"	"			"	"
Oct	"	"			"	"
Nov	3.60	3.60			"	"
DEC	"	"			"	"
1984						
JAN	3.60	3.60			42.00	42.00
Feb	"	"			40.97	45.00
MARCH	"	"			33.41	43.00
APRIL	1.72	5.80			23.33	35.08
MAY	23.98	24.40			35.61	40.68
JUNE	24.76	29.92			35.91	41.70
JULY	27.11	29.51			36.65	41.68
Aug.	6.93				36.83	

PROCESS AREA CHLORINE 300

DMR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - CHLORINE 003D							
1983	003D				003C		lb/c
	FLOW -MGD				FLOW -MGD		
	AVC	MAX			AVC	MAX	
JAN	9.14	29.00			1.61	2.90	
FEB	7.46	9.70			1.92	2.50	
MARCH	7.15	9.70			1.89	2.50	
APRIL	5.52	7.60			1.74	3.10	
MAY	10.60	15.30			2.12	3.65	
JUNE	15.21	25.30			1.69	1.90	
JULY	30.44	38.00			2.27	4.00	
AUG	24.39	30.20			3.81	5.25	
SEPT	25.86	34.20			1.53	2.30	
OCT	19.92	32.00			1.00	1.00	
NOV	10.68	15.00			1.00	1.00	
DEC	9.18	19.0			1.15	1.00	
1984							
JAN	5.43	7.20			1.11	1.00	
FEB	10.30	14.00			1.00	1.00	
MARCH	10.16	15.90			1.00	1.00	
APRIL	12.94	20.30			1.28	9.60	
MAY	20.14	29.50			1.00	1.00	
JUNE	21.09	26.10			1.00	1.02	
JULY	19.67	27.60			1.00	1.00	
AUG.	18.18				1.20		

## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS <sup>INTERNAL</sup> -AOutfall 311

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 311, Chlor-alkali II plant process discharge.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Total Suspended Solids (TSS)*	509(1122)	1098(2420)	N/A	N/A
Total Residual Chlorine	7.9(17.4)	13.0(28.6)	N/A	N/A
<del>Total Chromium**</del>	<del>0.23(0.5)</del>	<del>0.45(1.0)</del>	<del>N/A</del>	<del>N/A</del>
Total Copper*	4.9(10.8)	12.0(26.4)	N/A	N/A
Total Lead *	2.4(5.3)	5.9(13.0)	N/A	N/A
Total Nickel*	3.7(8.1)	7.3(21.3)	N/A	N/A
<del>Total Purgeable Halocarbons*</del>	<del>1.3(3)</del>	<del>2.7(6)</del>	<del>N/A</del>	<del>N/A</del>
Biomonitoring	N/A	N/A	N/A	N/A

Effluent Characteristic	Monitoring Requirements	
	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day(MGD)	Continuous	Record
Total Suspended Solids (TSS)*	1/Day	24-Hour Composite
Total Residual Chlorine	1/Day	Grab
<del>Total Chromium</del>	<del>1/Week</del>	<del>24-Hour Composite</del>
Total Copper	1/Week	24-Hour Composite
Total Lead	1/Week	24-Hour Composite
Total Nickel	1/Week	24-Hour Composite
<del>Total Purgeable Halocarbons*</del>	<del>1/Week</del>	<del>24-Hour Composite</del>
Biomonitoring	(See Part III)	24-Hour Composite

\* EPA Method 601 or 624

\*\* At CTBD

\* EFFECTIVE Jan 1, 1986

PART 1

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~1/day via grab sample.~~  
N/A

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 311, chlor-alkali plant 24" parshall flume.

## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS <sup>INTERNAL</sup> - Outfall 321

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 321, Chlorine plant.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Total Suspended Solids (TSS)**	921(2030) <sup>601</sup>	1986(4378) <sup>5010</sup>	N/A	N/A
Total Residual Chlorine	14.2(31.4) <sup>3</sup>	23.4(51.7) <sup>6.3</sup>	N/A	N/A
Total Copper	8.8(19.5) <sup>25.0</sup>	21.7(47.8) <sup>61.3</sup>	N/A	N/A
Total Lead	4.3(9.6) <sup>12.2</sup>	10.7(23.6) <sup>30.1</sup>	N/A	N/A
Total Nickel	6.7(14.7) <sup>18.9</sup>	17.5(38.6) <sup>49.5</sup>	N/A	N/A
<del>Total Purgeable Halocarbons*</del>	<del>2.3(5)</del>	<del>4.6(10)</del>	<del>N/A</del>	<del>N/A</del>
Biomonitoring	N/A	N/A	N/A	N/A

Effluent Characteristic	Monitoring Requirements	
	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day(MGD)	Continuous	Record
Total Suspended Solids (TSS)**	1/Day	24-Hour Composite
Total Residual Chlorine	1/Day	Grab
Total Copper	1/Week	24-Hour Composite
Total Lead	1/Week	24-Hour Composite
Total Nickel	1/Week	24-Hour Composite
<del>Total Purgeable Halocarbons*</del>	<del>1/Week</del>	<del>24-Hour Composite</del>
Biomonitoring	(See Part III)	24-hr. composite

\* EPA Method 601 or 624

\*\* To be sampled after treatment prior to comingling with once through cooling water

\*\* EFFECTIVE DATE JAN. 1, 1986

PART I

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~1/day via grab sample.~~  
N/A

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 321, chlorine plant discharge at 36" trench concrete.

## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS <sup>INTERNAL</sup> - Outfalls 331, 341, 351, 361, 371

During the period beginning the effective date and lasting through the expiration date, the permittee is authorized to discharge from Outfall(s) serial number(s) 331, 341, 351, 361, 371; Once-through cooling water and storm runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
<del>Net Total Oxygen Demand*</del>	<del>Report</del>	<del>Report</del>	<del>N/A</del>	<del>5(mg/l)</del>

Effluent Characteristic	Monitoring Requirements	
	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day(MGD) <b>331</b>	<b>1/MONTH</b> Continuous	<b>ESTIMATE based ON IN-LINE</b> <b>Record FLOWmeter</b>
<del>Net Total Oxygen Demand</del>	<del>1/Day</del>	<del>Grab</del>
* Each outfall <b>341 &amp; 351</b>	<b>1/MONTH</b>	<b>ESTIMATE based ON</b> <b>HEAT EXCHANGER CALCULATIONS</b> <b>AND PORTABLE FLOW</b> <b>meter</b>
<b>361</b>	<b>1/month</b>	<b>PORTABLE Flowmeter</b>
<b>371</b>	<b>1/month</b>	<b>one time flow by</b> <b>collection</b>



PART I

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~1/day via grab sample.~~

N/A

SEE Part III

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

331; 24" parshall flume  
341, 36" flume  
351, 10' flume  
361, earthen trench  
371, 20" pipe.

COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
GLYCOL I PROCESS AREA 400

GENERAL COMMENTS/REQUESTS

1. Page 14 of the Draft Permit

Outfalls 411 and 421 should read "Internal Outfalls 411 and 421".

2. Page 14 of the Draft Permit

On the effluent characteristic of flow, the requirements should be "estimated" rather than calculated and the frequency should be once/day.

3. Page 14 of the Draft Permit

For the TOD requirement on Internal Outfalls 411 and 421, we request that the requirements be changed to 100 mg/l TOD (see generic discussion on Once-Through Cooling Water - Net TOD). In addition, the net TOD monitoring requirements should be changed to a grab sample instead of a 24-hour composite in order to be consistent with the other once-through cooling water outfall requirements.

4. Page 14 of the Draft Permit

The monitoring requirement for 1,2-dichloropropane should also be changed from a once/week 24-hour composite to a once/week grab in order to be consistent with the other once-through cooling water outfall requirements.

5. Page 15 of the Draft Permit

The pH monitoring requirement for Internal Outfalls 411 and 421 should be deleted based upon the reasons and alternative monitoring plan listed in a separate comment section titled pH.

6. Page 16 of the Draft Permit

Outfalls 431, 441, and 451 should read "Internal Outfalls 431, 441 and 451".

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
GLYCOL I (AREA 400)  
PAGE 2

7. Page 16 of the Draft Permit

For Internal Outfall 441, a limitation of 200 mg/l of 1,2-dichloropropane was imposed on this process area uncontaminated storm runoff after first flush is collected. In order to be consistent with requirements on similar stream in other plants (i.e. Vinyl II Internal Outfall 1721) the discharge limitation should be set at 1 mg/l rather than 200 mg/l. no

8. In order to update the Agency's records, it should be noted that the scrubber water from the Glycol I incinerator discharges to Outfall 451 at a rate of 0.1 MGD.

9. Page 7, Paragraph 8 of the Fact Sheet

The Agency states in the fact sheet for Area 400 "Abatement must be provided to maintain an effluent long term average discharge of approximately 12 lb/day to comply with the approximately 52 lb/day limitation. This level of abatement was determined to represent containment in the area equivalent to BAT reductions." The applicant requests that the Agency explain these statements since they are incomprehensible to us.

10. Flows are to be estimated based as indicated on corrected permit sheet (Pages 14 and 16) in the back of this section. Frequency of measurement should be as shown.

## PROCESS AREA

## Glycol I

400

## DMR DATA

**JANUARY, 1983 THROUGH JULY, 1984**

PLANT - Glycol I 004 A, B & C

1983	004A				004B				004C			
	Flow AVE	MCD MAX	TOD AVE	MAX	Flow AVE	MCD MAX	TOD AVE	MAX	Flow AVE	MCD MAX	TOD AVE	MAX
JAN	17.91	18.70	2390	21646	14.08	14.20	1474	2705	0.05	0.05	2	2
FEB	17.95	18.10	990	2401	14.15	14.30	962	2385	"	"	2	4
MARCH	17.40	18.10	2405	4063	13.71	14.30	1998	8184	"	"	1	
APRIL	15.51	18.00	2423	4933	12.25	14.20	1545	4203	"	"	3	5
MAY	8.13	18.10	775	2717	17.20	21.50	1342	2331	"	"	3	1
JUNE	17.82	18.10	1964	2717	14.18	14.30	1639	3153	"	"	3	11
JULY	19.04	24.20	2208	3632	15.14	19.10	2203	8808	"	"	1	
AUG	24.65	30.20	3035	6432	19.43	23.80	3059	4941	"	"	15	32
SEPT	24.31	33.90	2645	5025	18.85	19.10	2167	5903	"	"	6	5
OCT	23.54	43.10	2057	4273	11.83	19.00	1306	3494	0.06	0.15	5	12
NOV	22.18	24.40	2095	4804	17.55	19.00	1524	2852	0.15	0.15	11	35
DEC	23.73	24.20	2868	5204	18.74	19.10	2499	8197	0.15	0.15	9	30
JAN	23.96	24.00	1380	2602	18.96	19.00	929	2218	0.15	0.15	13	51
FEB	19.39	24.00	1081	3888	15.38	19.00	996	3036	0.12	0.15	5	52
MARCH	20.54	24.00	1603	5511	16.25	19.00	1023	4523	0.15	0.15	9	18
APRIL	22.51	23.20	787	3453	17.20	18.30	494	2747	0.15	0.15	0	C
MAY	23.02	24.00	1505	3002	18.17	19.00	819	2060	0.15	0.15	2	2
JUNE	27.35	37.54	2862	7510	21.61	29.61	2208	5111	0.15	0.15	13	1
JULY	28.56	37.80	3194	5137	22.72	29.79	2401	3823	0.15	0.15	14	25
	25.33		26.50		20.13		2047		0.13		10.6	

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PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS <sup>INTERNAL</sup> - Outfalls 411 and 421

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 411 and 421 (once-through cooling water) from propylene oxide and intermediates.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic

		<u>Discharge Limitations</u>			
		kg/day(lbs/day)		Other Units (Specify)	
		Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)		N/A	N/A	Report	Report
<del>Net</del> Total Oxygen Demand		N/A	N/A	Report	<sup>100</sup> 5(mg/l)
1,2-Dichloropropane*		Report	Report	N/A	200(ug/l)

Effluent Characteristic

		<u>Monitoring Requirements</u>	
		Measurement	Sample
		Frequency	Type
Flow-m <sup>3</sup> /Day(MGD)		<del>Once per day</del> Calculated	<b>ESTIMATED BASED ON PUMP CURVES AND PUMP HOURS</b>
<del>Net</del> Total Oxygen Demand		1/Day	<del>Grab</del> <del>24 Hour Composite</del>
1,2-Dichloropropane		1/Week	<del>Grab</del> <del>24 Hour Composite</del>

\*EPA Method 601 or 624

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~via~~ via grab sample.  
N/A

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 411, once-through cooling water at "old" 004-1; 421, once-through cooling water at "old" 004-2.

## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS <sup>INTERNAL</sup> -AOutfall(s) 431, 441, and 451.

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 431, stormwater impoundment; 441, emergency stormwater overflow and 451, once-through cooling and rain water (air system) from Glycol I area.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>			
	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Total Oxygen Demand	Report	Report	N/A	200 (mg/l)
1,2-Dichloropropane	Report	Report	N/A	<del>200 (ug/l)</del> 1 (mg/l)

<u>Effluent Characteristic</u>	<u>Monitoring Requirements</u>	
	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day(MGD)	1/Day*	Estimate
Total Oxygen Demand	1/Day*	Grab
1,2-Dichloropropane**	1/Week*	Grab
Flow-m <sup>3</sup> /Day (MGD) 431*	1/Day	MEASURED with RESTRICTED ORIFICE PLATE
*When flowing		
**EPA Method 601 or 624 441*	1/Day	ESTIMATED BASED ON RAINFALL
451	1/month	Estimate based on heat balance calculations

PART 1

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored N/A.

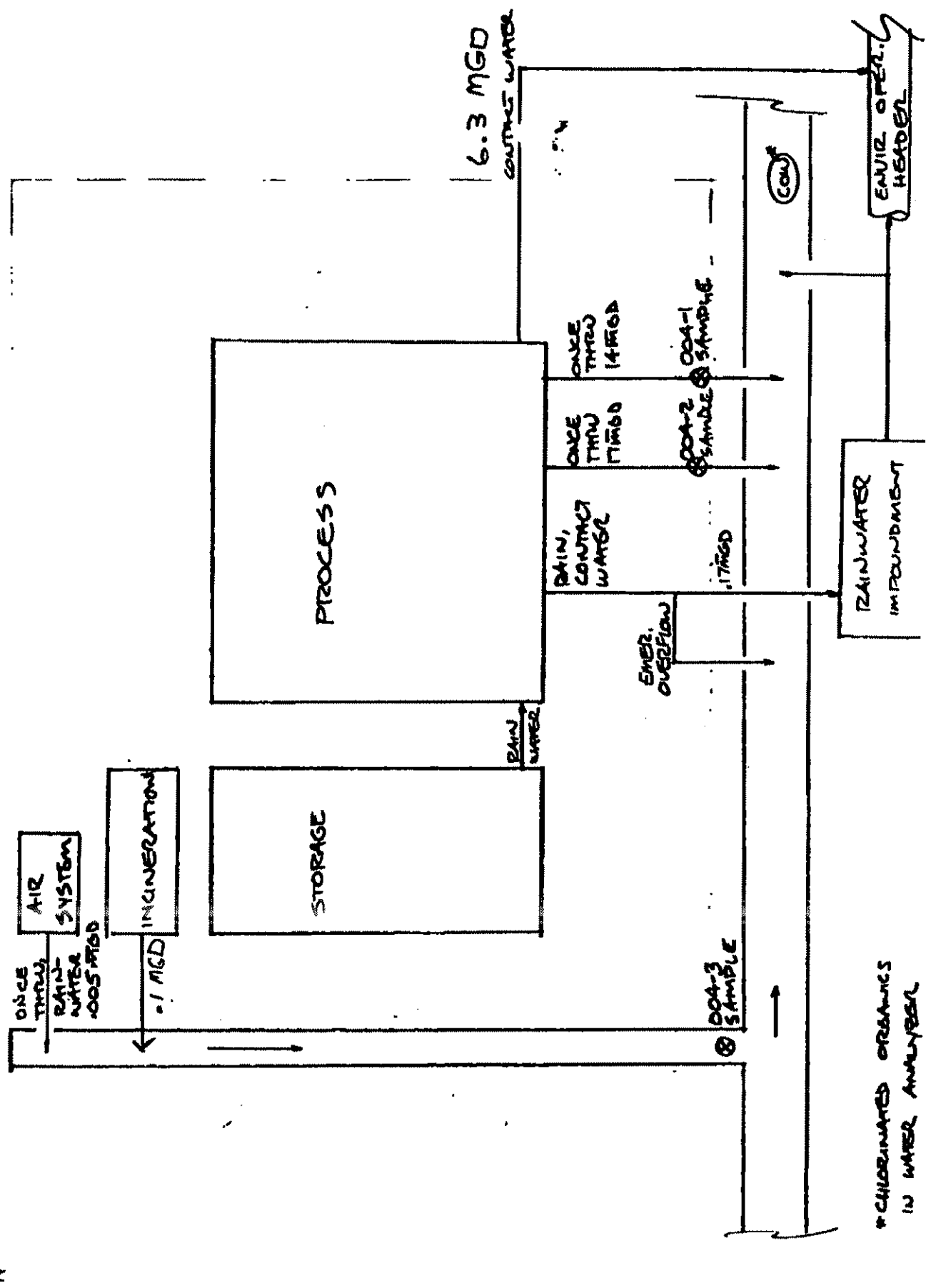
There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 431, rain water impoundment to effluent canal; 441, emergency overflow from Glycol I area and 451, once-through cooling and rain water (air system) at "old" 004-3 in the Glycol I area.



4/84  
7/84

GLYCO I 004-1  
004-2  
004-3



COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
SOLVENTS PROCESS AREA 500

COMMENT NO. 1, PAGE 18, DRAFT PERMIT

The limitation on total nickel is based on one grab sample in the permit application and is unnecessary based on most recent data.

Justification

Recent analyses of Internal Outfalls 511 and 521 indicates that nickel is below treatability levels and, moreover, appears in amounts which should not be of concern to the Agency. Recent data indicate the following:

<u>Date</u>	<u>Total Nickel</u>				
	<u>Mississippi River</u>	<u>Internal Outfall 511</u>		<u>Internal Outfall 521</u>	
	<u>mg/l</u>	<u>mg/l</u>	<u>lb/day</u>	<u>mg/l</u>	<u>lb/day</u>
7/6/84	.025	—	—	—	—
7/8/84	—	.011	7.1	.026	.54
7/9/84	—	—	—	.015	.21
7/10/84	.017	.011	7.8	.015	—
7/24/84	—	<.003	<1.5	<.003	<.1
7/25/84	<.003	<.003	<1.5	<.003	<.1
7/26/84	<.003	.008	4.0	<.003	<.1
7/27/84	<.003	.012	6.0	<.003	<.1
7/28/84	<.003	<.003	<1.5	<.003	<.1
7/29/84	<.003	<.003	<1.5	.014	<.1
7/31/84	<.003	<.003	<1.5	<.003	<.1
8/1/84	<.003	<.003	<1.5	<.003	<.1

It is obvious from the data that the amounts of nickel appearing in Internal Outfall 511 and 521 effluents are due to background levels of the metal in the cooling water obtained from the Mississippi River. The permit application single data point is, we believe, erroneous and, moreover, not representative of nickel discharges from these outfalls.

Requested Change to Draft Permit

Delete the limitation on total nickel at Internal Outfalls 511 and 521.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
SOLVENTS (PROCESS AREA 500)  
PAGE 2

COMMENT NO. 2, PAGE 18, DRAFT PERMIT

The discharge limitations for TPH for the sum of Internal Outfalls 511 and 521 should be set at levels which have already been achieved by the permittee from the previous installation of BAT treatment. Discharge limitations on Internal Outfall 601 should be moved to Internal Outfall 511 and limitations requested for 601 should be summed with those limitations requested for 511 and 521.

Justification

See justification described in the Vinyl I Process Area 600 comments.

Requested Changes to the Draft Permit

The discharge limitations for TPH for 511 and 521 should be modified as proposed in a separate comment section titled "Proposed TPH Limits". Proposed limitations on 511 and 521 should be added to proposed limitations on 601 and should be monitored at 511 and 521. Losses measured at 521 should be added to losses measured at 511.

COMMENT NO. 3, PAGE 18, DRAFT PERMIT

The limits for "Total Residual Chlorine" should be deleted from the Internal Outfall 511 since recent analytical results (set forth below) indicate that this outfall does not contain a significant chlorine discharge.

Justification

Recent data from Internal Outfall 511 indicate the following:

<u>Date</u>	<u>mg/l TRC*</u>	<u>Detection Limit (mg/l)</u>
6/22/84	ND	1.0
6/25/84	1.9	1.0
6/26/84	3.6	1.0
6/27/84	<1	1.0
6/28/84	<1	1.0
6/30/84	<1	1.0
7/1/84	<1	1.0
7/6/84	<1	1.0
7/9/84	<1	1.0
7/11/84	<1	1.0
7/12/84	<1	1.0

*this detection limit is  
higher than the BAT  
average concentration of  
0.9 mg/l  $Cl_2$*

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
SOLVENTS (PROCESS AREA 500)  
PAGE 3

Date	mg/l TRC*	Detection Limit (mg/l)
7/25/84	<0.05	0.05**
7/26/84	<0.05	0.05
7/27/84	<0.05	0.05
7/28/84	<0.05	0.05
7/29/84	<0.05	0.05
7/30/84	0.24	0.05
8/1/84	0.30	0.05
8/2/84	<0.05	0.05
8/4/84	<0.05	0.05
8/5/84	<0.05	0.05
8/6/84	<0.05	0.05

\*A pound per day loss rate cannot be calculated since this is a grab sample

\*\*More sensitive analytical method used as of this date

The fact sheet does not indicate, and we have been unable to determine, what the basis is for the "17 average/34 maximum" limitation. The detection limit based on new analytical methodology for TRC is 0.05 mg/l or 25 theoretical pounds per day at the 511 Internal Outfall. It is, therefore, impossible to demonstrate compliance of a 17 pounds per day average permit limitation. It would be arbitrary and capricious to apply such a limit in any final permit.

Requested Change to the Draft Permit

Based on recently developed (previous page) data, the TRC limitation should be deleted. Alternatively, the frequency should be changed to once a month with a "report only" requirement. Also, the permit writer is referred to a separate comment section on "Total Residual Chlorine" for further justification.

COMMENT NO. 4, PAGE 18, DRAFT PERMIT

The limitation on "Total Residual Chlorine" should be deleted from Internal Outfall 521 since the chlorine is adequately neutralized in the return canal by the chlorine demand of 575 MGD of once-through Mississippi River water prior to discharge from the Division Final Outfall 001.

Justification

Neutralization of residual chlorine by once-through river water is described in a separate comment section on "Total Residual Chlorine". Recent data shown below indicates that the present discharge of residual chlorine from 521 is neutralized prior to discharge from the final outfall.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
SOLVENTS (PROCESS AREA 500)  
PAGE 4

Date	Internal Outfall 521	Final Outfall 001	
	(Average Flow 1.5 MGD)	(Average Flow 600 MGD)	
	mg/l	mg/l	lb/day**
6/22/84	246		
6/25/84	109		
6/26/84	123		
6/27/84	< 1		
6/28/84	324		
6/30/84	67		
7/1/84	105		
7/6/84	15		
7/9/84	48		
7/11/84	75		
7/12/84	47		
7/25/84*	2.8		
7/26/84	17.4	<.03	<150
7/27/84	< .05	<.03	<150
7/28/84	160	<.03	<150
7/29/84	110	<.03	<150
7/30/84	4.9	<.03	<150
8/1/84	< .05	<.03	<150
8/2/84	< .05	<.03	<150
8/3/84	—	<.03	<150
8/4/84	7.4	<.03	<150
8/5/84	15.2	<.03	<150
8/6/84	8.1	<.03	<150

\*More sensitive analytical method used as of this date.

\*\*Assumes this concentration is present for the 24-hour period.

Requested Change to Draft Permit

Based on recently developed data, the TRC limitation should be deleted from Internal Outfall 521. Alternatively, the frequency should be changed to once a month with a "report only" requirement. Also, the permit writer is referred to a separate comment section on "Total Residual Chlorine" for further justification.

COMMENT NO. 5, PAGE 20, DRAFT PERMIT

Net TOD limits are inappropriate for OTCW in the Chlorinated Solvents Plant since purgeable halocarbons are the only source of organics and are monitored satisfactorily in the combined flow at Internal Outfall 511.

Justification

The proposed permit requires the monitoring of Net TOD for Internal Outfalls 611, 621, 631 and 641. The permittee feels this requirement is of no environmental value since purgeable halocarbon would be the only addition of TOD contamination and a TPH limit exists immediately downstream at the final combined flow from the 600 Area. Moreover, sufficient analytical sensitivity exists at this outfall such that limitations and new outfalls further into the process area are unwarranted and contrary to 40 CFR 122.45(i).

Additional comments concerning these net TOD requirements can be found in a separate comment section titled "OTCW Net TOD".

Requested Changes to the Draft Permit

The net TOD requirements should be dropped and Internal Outfalls 501, 531 and 541 should not be identified by serial numbers since all of the streams make up Internal Outfall 511. This should satisfy the intent of the permit writer to regulate for contamination since 511 has both discharge limitations and monitoring requirements for TPH as well as the analytical sensitivity.

GENERAL COMMENTS/REQUESTS

Page 8 of the Fact Sheet

1. Use water flow rates for the Chlorinated Solvents Plant in Dow correspondence "Proposed Total Purgeable Halocarbon Limits," 7/19/84.
2. "Influx" in paragraph 3 should be "reflux".
3. "Emperical" in paragraph 6 should be "empirical".

Page 18 of the Draft Permit

4. "Outfall(s) Sum of 511 and 521" should read "Internal Outfall(s) Sum of 511 and 521".

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
SOLVENTS (PROCESS AREA 500)  
PAGE 6

5. EPA Analytical Standards require grab samples analyzed within 30 minutes for TRC, but the proposed permit states the use of a 24-hour composite. We believe the intent of the permit writer was to require a grab sample for this parameter.
6. Biomonitoring comments and recommendations for 511 can be found in a separate section titled "Biomonitoring" and in Dow's comments on biomonitoring in Parts II and III of the draft permit.

Page 19 of the Draft Permit

7. The pH monitoring requirements for Internal Outfalls 531 and 541 should be deleted based upon the reasons and alternative monitoring plan listed in a separate comment section titled "pH".
8. The description of the compliance monitoring requirements on page 19 for 511 should read "511; process, cooling and scrubber" not "511; contact river water from steam stripper".

Pages 20 and 21 of the Draft Permit

9. Delete completely pages 20 and 21.

Page 18 of the Draft Permit

10. Due to design, construction and start-up of a major capital project to reduce chlorinated organic losses at the Solvents Plant (see Compliance Schedule section), it is necessary to place interim limitations on TPH on the sum of Internal Outfalls 511 and 521. The final limits will be effective upon completion of the project on April 1, 1987. The interim limit for this outfall should be 284 lb/day maximum based on 1984 data with a 99% confidence factor. (See discussion in Compliance Schedule.) The 284 lb/day maximum includes TPH losses from Vinyl I and Solvents.

PROCESS AREA Solvents 500

DMR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - Solvents 005

1983	005A (511)				005B (521)			
	FINV AVG.	MAX.	RCL AVG.	MAX	FINV AVG.	MAX.	RCL AVG.	MAX
JAN	52.81	62.50	76.59	344	1.12	1.66	5.69	13.38
FEB	55.08	66.29	61.94	126	1.43	1.82	5.43	17.19
MARCH	52.07	82.35	100	453	1.48	2.25	14.26	62.02
APRIL	36.01	40.68	105	726	1.83	2.75	12.52	93.56
MAY	46.70	55.04	54	105	1.92	3.12	3.53	10.28
JUNE	56.47	64.68	45	123	2.04	2.21	4.83	69.46
JULY	65.01	82.20	37	101	1.88	2.04	1.61	8.85
AUG	67.61	90.04	37	168	1.66	2.67	3.14	22.00
Sept	61.95	66.06	25	48	2.01	2.55	2.35	19.21
OCT	49.13	54.95	26	95	1.73	1.87	2.95	41.85
NOV	49.08	64.61	29	204	1.69	2.15	10.18	240
DEC	45.94	50.63	25	91	1.80	3.03	2.81	11.37
1984								
JAN	39.86	48.23	33	138	2.26	2.93	3.80	29.09
Feb	38.51	42.00	27	156	2.26	3.08	1.74	4.68
MARCH	48.20	56.69	29	77	2.61	2.93	0.50	2.79
APRIL	42.37	57.79	19	43	1.99	2.81	1.04	9.07
MAY	61.52	66.11	15	45	1.44	1.72	0.82	3.42
JUNE	75.56	79.44	24	99	1.43	2.33	0.98	8.59
JULY	78.04	85.33	24	192	1.67	2.52	0.57	2.32
Avg.	66.56		28.63	86	1.65		2.03	



## PART I

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PART I  
REQUIREMENTS FOR NPDES PERMITS

INTERNAL

## SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall(s) Sum of

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) sum of 511 and 521 - process wastewater from the manufacture of chlorinated solvents.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent CharacteristicDischarge Limitations

	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Total Residual Chlorine	Report	Report		
Total Residual Chlorine	7.7(17)	15.4(34)	N/A	N/A
Total Nickel	2.8(6.3)	5.7(12.6)	N/A	N/A
Total Purgeable Halocarbons*	14.5(32)**	29.0(64)	N/A	N/A
Biomonitoring	N/A(68)	N/A(136)	N/A	N/A

Effluent CharacteristicMonitoring Requirements

	Measurement	Sampling
	Frequency	Type
Flow-m <sup>3</sup> /Day(MGD)	Continuous	Record
Total Residual Chlorine	1/Month	CRAB
Total Residual Chlorine	1/Day	24-Hour Composite
Total Nickel	1/Week	24-Hour Composite
Total Purgeable Halocarbons	1/Day	24-Hour Composite
Biomonitoring	(See Part III)	24-Hour Composite

\*EPA Method 601 or 624

\*\*Outfall 511 contains purgeable halocarbons and total residual chlorine from Vinyl I, outfall 601. The above limits apply after the values from outfall 601 are subtracted from outfall 511. AND FROM THE CHLORINATED SOLVENTS PROCESSES.

\* EFFECTIVE DATE FOR FINAL LIMITATIONS IS APRIL 1, 1987

INTERIM LIMITS FOR SUM OF OUTFALLS 511 and 521 is 284 lb/day

PART 1

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored ~~1 day~~ <sup>N/A</sup> via grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 511; ~~contact river water from steam stripper~~; 521, contact process wastewater.

511 (formerly 005A) process, cooling and scrubber water; 521 (formerly 005B) scrubber and stormwater from solvents manufacturing area.

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DELETE

PART I  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - Outfalls 501, 531, 541

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 501, 531, 541 - Non-contact river water and uncontaminated storm runoff from chlorinated solvents plant.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic

Discharge Limitations

	kg/day (lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Net Total Oxygen Demand	N/A	N/A	N/A	5(mg/l)

Effluent Characteristic

Monitoring Requirements

	Measurement	Sample
	Frequency	Type
Flow-m <sup>3</sup> /Day(MGD)	Continuous	Estimate
Net Total Oxygen Demand	1/Day	Grab

PART I

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DELETE

The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored 1/day via grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

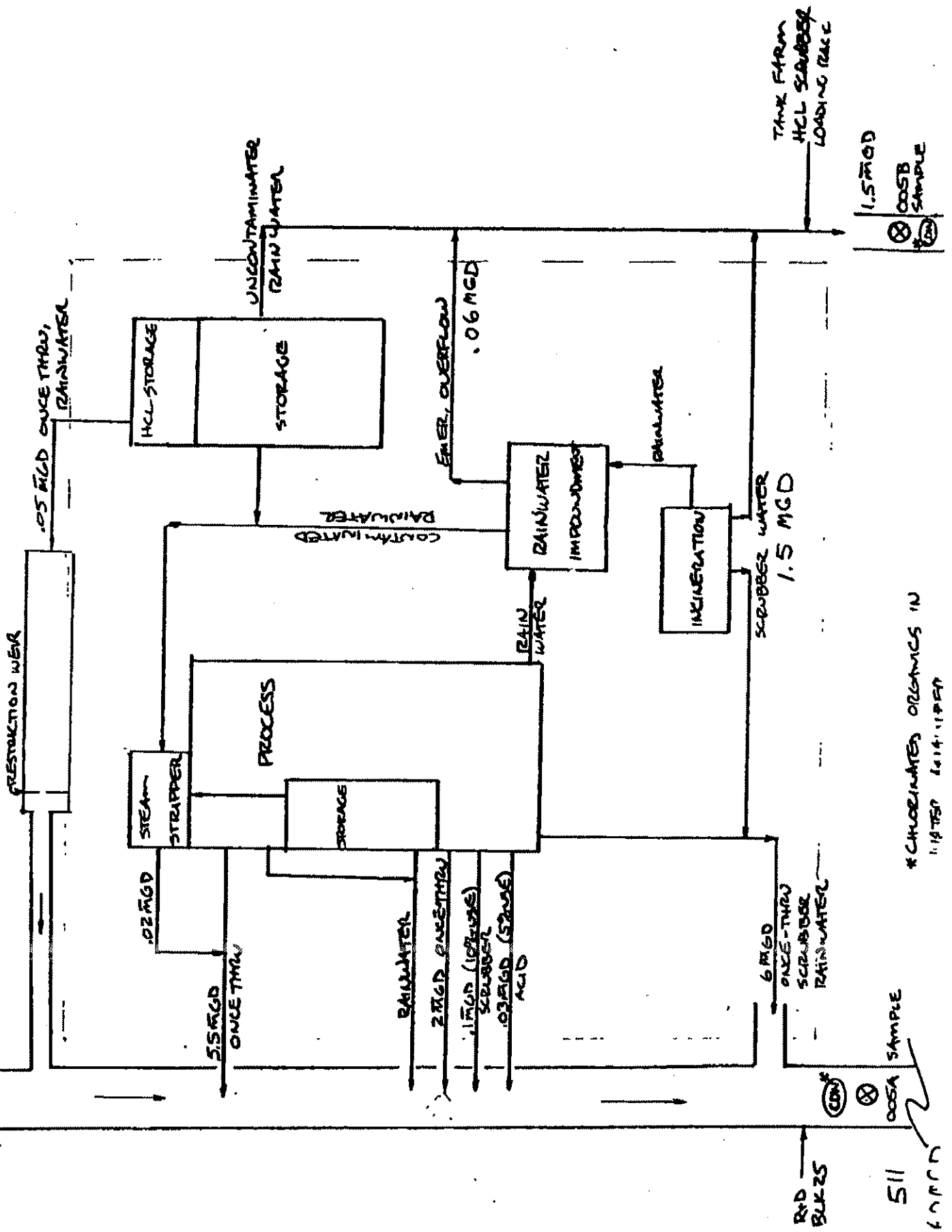
Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

- 501; non-contact river water plus incinerator scrubber water.
- 531, non-contact once-through river water.
- 541, non-contact river water plus stripped stormwater.

11/83

SOLVENTS 005A, 005B

006 (601) - Delete



\*CHLORINATED ORGANICS IN  
11/83 10/14/11/83

COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
VINYL I PROCESS AREA 600

COMMENT NO. 1, PAGE 22, DRAFT PERMIT

Net TOD limits are inappropriate for OTCW in the Vinyl I Plant since purgeable halocarbons are the only source of organics and are monitored satisfactorily in the combined flow from the 600 Area.

Justification

The proposed permit requires the monitoring of Net TOD for Internal Outfalls 611, 621, 631 and 641. The permittee feels this requirement is of no environmental value since purgeable halocarbons would be the only source of TOD contamination and a TPH limit exists immediately downstream at the final combined flow from the 600 Area. Moreover, sufficient analytical sensitivity exists at this downstream outfall such that limitations and new outfalls further into the process area are unwarranted.

Additional comments concerning these net TOD requirements can be found in a separate comment section titled "OTCW Net TOD".

Requested Changes to the Draft Permit

The net TOD requirements should be dropped and Internal Outfalls 611, 621, 631, and 641 should not be identified by serial numbers since all of these streams make up Internal Outfall 601. This should satisfy the intent of the permit writer to regulate for contamination since Internal Outfall 601 has both discharge limitations and monitoring requirements for TPH, as well as the analytical sensitivity.

COMMENT NO. 2, PAGE 22, DRAFT PERMIT

The discharge limitations for TPH for Internal Outfall 601 should be moved to Internal Outfall 511 and should be set at levels which have already been achieved by the permittee from the previous installation of BAT treatment.

Justification

Internal Outfall 511 is common to both the Vinyl I and the Solvents process areas. The total flow at 511 averages 60 MGD. Analytical sensitivity is equivalent to 2.5 lb/day of TPH for each of the five compounds which could be present at this internal outfall. Consolidation of Internal Outfalls 601 and 511 would reduce the sampling requirements, the flow measurements, the flow calculations and the analytical demands on the permittee without sacrificing the lb/day sensitivity limits.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
VINYL I (AREA 600)  
PAGE 2

Requested Changes to Draft Permit

The discharge limitations for purgeable halocarbons on Internal Outfall 601 should be modified as proposed in a separate comment section titled "Proposed Total Purgeable Halocarbons Limits", should be monitored at Internal Outfall 511, and should be added to the limitations requested at Internal Outfalls 511 and 521.

COMMENT NO. 3, PAGE 22, DRAFT PERMIT

Imposition of permit limits and monitoring for TOD, TPH, TRC and bio-monitoring at Outfall 601 is unnecessary and is contrary to EPA's own regulation at 40 CFR 122.45(i) in view of the fact that the same parameters are limited and monitored at proximate downstream Internal Outfall 511.

Justification

40 CFR 122.45(i) allows EPA to impose permit limits and monitoring at upstream points in an owner's/operator's facility when "...exceptional circumstances..." support it and are recited in the fact sheet. Implicit in 40 CFR 122.45(i) is the proposition that EPA may impose permit limits and conditions upstream but no further upstream than is necessary to overcome the "exceptional circumstances" which justified it in the first place.

In this situation, imposition of limits upstream is justified, if at all, on the basis of lack of analytical sensitivity at Dow's Final Outfall 001 where flow can reach up to about 650 MGD. At the flow rate existing at Outfall 601 from the Vinyl I Plant, 47 MGD, there is sufficient analytical sensitivity to control and monitor the pollutant parameters limited there.

Very close to the same degree of analytical sensitivity exists at Internal Outfall 511 which is a combined discharge point for the Vinyl I Plant and the Solvents Plant (total combined flow of about 60 MGD).

Inasmuch as the same pollutants are regulated at the two outfalls and Outfall 511 has essentially the same analytical sensitivity as at Outfall 601, there is no legal or technical justification to control and monitor these pollutants at Internal Outfalls 601, 611, 621, 631 and/or 641. In fact, all these outfalls should actually be deleted in favor of Outfall 511.

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VINYL I (AREA 600)  
PAGE 3

Requested Change to the Draft Permit

Delete Outfalls 611, 621, 631, 641, and 601 (and continue to limit and monitor TOD, TPH, TRC and monitor flow and biomonitor at Internal Outfall 511).

COMMENT NO. 4, PAGE 22, DRAFT PERMIT

The limits for "Total Residual Chlorine" should be deleted from the 601 Internal Outfall since recent analytical results (set forth below) indicate that this plant does not have a significant chlorine discharge.

Justification

Recent data from Internal Outfall 601 indicates the following:

<u>Date</u>	<u>mg/l TRC*</u>	<u>Detection Limit (mg/l)</u>
6/22/84	ND	1
6/27/84	ND	1
6/28/84	ND	1
6/29/84	ND	1
7/1/84	ND	1
7/3/84	ND	1
7/5/84	ND	1
7/6/84	ND	1
7/9/84	ND	1
7/10/84	ND	1
7/11/84	ND	1
7/12/84	ND	1
7/25/84	ND	0.05**
7/26/84	ND	0.05**
7/27/84	ND	0.05**
7/28/84	ND	0.05**
7/30/84	ND	0.05**
8/1/84	ND	0.05**
8/2/84	ND	0.05**
8/3/84	—	—
8/4/84	ND	0.05**
8/5/84	ND	0.05**
8/6/84	ND	0.05**

\*A pound per day calculation cannot be made since this is a grab sample

\*\*More sensitive analytical method used as of this date.



NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
VINYL I (AREA 600)  
PAGE 4

The fact sheet does not indicate, and we have been unable to determine, what the basis is for the 17 average/34 maximum limitation. The detection limit based on new analytical methodology for TRC is 0.05 mg/l or 20 theoretical pounds per day at the 601 Internal Outfall. It is, therefore, impossible to demonstrate compliance of a 17 pounds per day average permit limitation. It would be arbitrary and capricious to apply such a limit in any final permit.

Requested Changes to the Draft Permit

Based on recently developed (previous page) data, the TRC limitation should be deleted. Alternatively, the frequency should be changed to once a month with a "Report Only" requirement. Also, the permit writer is referred to a separate comment section titled "Total Residual Chlorine" for further justification.

GENERAL COMMENTS/REQUESTS

Page 9 of Fact Sheet

1. The statement "the permittee produces EDC by direct and oxychlorination of ethylene" is incorrect. It should read "the permittee produces EDC by direction chlorination of ethylene".
2. The statement "some VCM is chlorinated to 1,1,2-trichloroethane. The HCl by-product is utilized in the oxychlorination reaction above" is incorrect and should be deleted.
3. Use water flow rates for the Vinyl I Plant indicated in Dow correspondence "Proposed Total Purgeable Halocarbon Limits", 7/19/84.
4. Eliminate Internal Outfalls 611, 621, 631 and 641.

Page 10 of the Fact Sheet

5. "Abvoe" should be "above".
6. According to the permit writer, the excess stormwater calculation was supposed to be the same as the calculation for the Solvents Plant. If that is the case, the limits should be 12.5 pounds per day 30-day average and 25 pounds per day daily maximum, not 6 average/12 maximum as indicated on Page 10.

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
VINYL I (AREA 600)  
PAGE 5

7. "Emperical" should be "empirical".
8. "501" should be "511".
9. "Six components" should be "two components".

Page 22 of the Draft Permit

10. "Outfall 601" should read "Internal Outfall 601".
11. The monitoring requirements for TRC specify a "24-hour composite" sample. This is inconsistent with EPA sampling protocol. This was probably intended to be a "grab sample".
12. Biomonitoring for Internal Outfall 601 should be deleted since biomonitoring will be required downstream at Internal Outfall 511.

Page 23 of the Draft Permit

13. The pH monitoring requirements for Internal Outfalls 601, 611, 621, 631 and 641 should be deleted based upon the reasons and alternative monitoring plan listed in a separate comment section titled "pH".
14. The paragraph addressing net TOD and OTCW outfall descriptions should be deleted based on separate comments dealing with these subjects.

PROCESS AREA Vinyl I 600

DMR DATA

JANUARY, 1983 THROUGH JULY, 1984

PLANT - Vinyl I 006					
			601		
	Flow	MCD	ROR	N/day	
1983	AVE	MAX	AVE	MAX	
JAN	50.94	60.79	64	447	
FEB	52.41	57.20	64	146	
MARCH	52.42	59.20	105	1428	
APRIL	54.75	62.60	123	571	
MAY	55.16	67.60	91	511	
JUNE	56.57	67.70	85	643	
JULY	57.24	64.60	33	140	
AUG	56.79	66.50	37	119	
SEPT	52.78	60.00	29	160	
OCT	44.33	60.50	48	95	
NOV	47.36	57.90	76	516	
DEC	43.38	49.20	152	1874	
1984					
JAN	40.66	47.80	100	457	
FEB	47.35	57.60	33	134	
MARCH	31.86	39.60	25	374	
APRIL	25.05	43.50	31	137	
MAY	39.31	45.60	11	27	
JUNE	35.77	47.01	15	38	
JULY	45.51	48.70	12	30	
AUG.	42.94		31		
			160 mL		

## PART 1

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DELETE

Move to Internal

OUTFALL 511

PART 1  
REQUIREMENTS FOR NPDES PERMITS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - Outfall 601

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from Outfall(s) serial number(s) 601, process wastewater from EDC/VCM and once-through cooling water.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent CharacteristicDischarge Limitations

	kg/day(lbs/day)		Other Units (Specify)	
	Daily Avg	Daily Max	Daily Avg	Daily Max
Flow-m <sup>3</sup> /Day(MGD)	N/A	N/A	Report	Report
Net Total Oxygen Demand*	N/A	N/A	Report	Report
Total Purgeable Halocarbons**	8.6(19)	17.2(38)	N/A	N/A
Total Residual Chlorine	7.7(17)	15.4(34)	N/A	N/A
Biomonitoring	N/A	N/A	N/A	N/A

Effluent CharacteristicMonitoring Requirements

	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /Day(MGD)	Continuous	Record
Net Total Oxygen Demand*	1/Day	24-Hour Composite
Total Purgeable Halocarbons	1/Day	24-Hour Composite
Total Residual Chlorine	1/Day	24-Hour Composite
Biomonitoring	(See Part III)	24-Hour Composite

\* At OTCW streams 0621, 0631 and 0641.

\*\* EPA Method 601 or 624.

PART I

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The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored 1/day via grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): 601 final combined discharge of process, utility and storm drainage from the Vinyl I area. Located at "old" 006 sampling point at the southwest corner Block 17.

Net TOD to be monitored at 0611 approximately 17 MGD, 0621 approximately 10 MGD, 0631 approximately 17 MGD and 0641 at a location just prior to entering the return canal.

COMMENTS AND REQUESTED CHANGES  
TO DRAFT PERMIT LIMITATIONS AND  
CONDITIONS CONCERNING THE  
LIGHT HYDROCARBON II PLANT AREA 700

COMMENT NO. 1, PAGE 26, DRAFT PERMIT

The draft TSS limitations for Internal Outfall 721 are incorrectly based on the proposed organic guidelines "high" water use instead of the "low" water use concentrations, and the flow should be 0.3 MGD instead of the 0.03 MGD listed in the Fact Sheet. By using the correct TSS limitations and comparing against actual DMR data, this stream poses no threat of TSS contamination and its monitoring should be deleted.

Justification

The proposed permit specified discharge limitations of 71 lb/day average and 142 lb/day maximum. The permit writer states that the proposed organic chemical guidelines were used to regulate TSS in this stream. These proposed guidelines in 40 CFR §414.33(b) state BCT limitations for TSS of 120 mg/l daily average and 353 mg/l daily maximum for low water use (wastewater discharge is less than 0.2 gallons per pound of total daily production). The "high" water use concentrations used by the permit writer do not apply.

The Fact Sheet states that the contact water flow is 0.03 MGD for Internal Outfall 721. This was the flow reduction that Dow predicted in a correspondence from J.B. Martin (Dow) to J. Dehn (EPA/Dallas) on November 17, 1983. However, since that time, Dow has cancelled this proposed flow reduction project due to economic considerations. The correct flow for Internal Outfall 721 should be modified to 0.3 MGD, which is an average of the DMR monthly flows from 1983 to May, 1984 on the existing Internal Outfall 007. The Benzene Removal Project for this outfall is still underway.

Since the flow for Internal Outfall 721 will remain 0.3 MGD, not 0.03 MGD, the TSS calculations should be modified as follows:

TSS (lb/day average)

$$0.3 \text{ MGD} \times 8.34 \text{ lb/gallon} \times 120 \text{ mg/l} = 300 \text{ lb/day average}$$

TSS (lb/day maximum)

$$0.3 \text{ MGD} \times 8.34 \text{ lb/gallon} \times 353 \text{ mg/l} = 883 \text{ lb/day maximum}$$

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
LHC II (AREA 700)  
PAGE 2

For Internal Outfall 721, the fact sheet statement that "No data are available other than flow for this discharge" is incorrect. Proposed Internal Outfall 721 is Outfall 007 in our existing permit with monitoring requirements for flow, TSS, oil and grease and TOD.

DMR data from 1983 to May, 1984 for existing Outfall 007 shows the following TSS results:

		TSS lb/day daily average	TSS lb/day daily maximum
1983	January	21.5	108
	February	50.2	138
	March	50.2	167
	April	24.3	146
	May	23.0	106
	June	16.8	59
	July	17.7	70
	August	19.5	57
	September	18.0	44
	October	17.7	46
	November	19.2	70
	December	52.1	447
1984	January	57.2	196
	February	33.2	176
	March	30.9	123
	April	36.9	124
	May	52.6	150

Average lb/day is 31.8

It is obvious that the existing plant history for TSS is well below the 300 lb/day average and 883 lb/day maximum calculations using the actual flow of 0.3 MGD and the permit writer's proposed organic chemical guidelines. The past history of TSS for Internal Outfall 721 shows no threat of TSS contamination and provides sufficient information to justify the removal of its TSS requirements.

Requested Change to the Draft Permit

Delete the TSS discharge limitations and monitoring requirements on Internal Outfall 721.

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AND REQUESTED CHANGES  
LHC II AREA 700  
PAGE 3

COMMENT NO. 3, PAGE 26, DRAFT PERMIT

The proposed permit has discharge limitations on Internal Outfall 721 for two oxygen demand parameters, TOD and BOD<sub>5</sub>. This stream is currently permitted for TOD with the combined sum from three other processes. Since TOD is currently permitted and past data history is based on TOD not BOD<sub>5</sub>, the permittee requests that the discharge limitations and monitoring requirements be deleted for BOD<sub>5</sub>.

Also, the proposed TOD limitations of 200 mg/l average and 400 mg/l maximum should be converted to its equivalent mass limits that do not go into effect until capital project completion in July, 1, 1986.

Justification

Internal Outfall 721 is currently permitted for TOD with the sum of three other processes. This stream has a "characteristic discharge" of 1,377 lb/day average and 2,750 lb/day maximum.

Internal Outfall 721

<u>Date</u>	<u>Flow MGD</u>	<u>TOD lb/day Average</u>	<u>TOD lb/day Maximum</u>
<u>1983</u>			
January	0.23	449	683
February	0.28	665	897
March	0.28	595	1094
April	0.29	417	621
May	0.28	384	918
June	0.25	385	811
July	0.23	362	709
August	0.25	313	525
September	0.27	359	689
October	0.30	467	1022
November	0.29	398	769
December	0.42	730	2875
<u>1984</u>			
January	0.37	699	1299
February	0.30	779	2124
March	0.34	879	1569
April	0.40	689	2538
May	0.35	986	2117
Avg.	0.30	Avg. 562	



NPDES PERMIT COMMENTS  
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LHC II AREA 700  
PAGE 4

Given the fact that TOD is currently monitored under the existing permit with years of past history, the permittee does not understand the need to require monitoring for the redundant oxygen parameter of BOD<sub>5</sub>. TOD has been an excellent indicator of operational upsets that would affect oxygen demand which justifies the deletion of BOD<sub>5</sub>.

The proposed permit places TOD "concentration" limits of 200 mg/l average and 400 mg/l maximum on Internal Outfall 721. The 1983 through May, 1984 data listed previously, demonstrates the consistent flow nature of this stream which warrants conversion of the concentration limits to mass limits, based on the average flow of 0.3 MGD:

$$0.3 \text{ MGD} \times 8.34 \text{ lb/gal} \times 200 \text{ mg/l} = 500 \text{ lb/day average}$$

$$0.3 \text{ MGD} \times 8.34 \text{ lb/gal} \times 400 \text{ mg/l} = 1000 \text{ lb/day maximum}$$

However, it should be noted that the previous DMR data show an average daily TOD discharge of 562 pounds, which is consistently above the proposed mass limit of 500 lb/day average. The existing treatment system basically consists of an API separator which results in minimum impact on TOD removal. The permittee is currently installing a capital project for benzene removal that is expected to reduce its TOD discharge below the proposed mass limits. This project completion date is June, 1986 (September 1, 1983 letter correspondence, David Graham (Dow) to John Dehn (EPA)). It would be arbitrary to attempt to establish "interim" TOD limitations prior to the completion of this capital work which is necessary to maintain compliance, so the permittee requests that TOD be "reported" until July 1, 1986.

Requested Change to the Draft Permit

For Internal Outfall 721, delete the BOD<sub>5</sub> limitations and monitoring requirements, convert the proposed concentration TOD limits to its equivalent mass limits effective July 1, 1986. TOD should be reported within that time at the proposed frequency of once per week.

COMMENT NO. 3, PAGE 26, DRAFT PERMIT

The oil and grease "concentration" limits should be converted to its equivalent mass limitations of 25 lb/day average and 38 lb/day maximum.

Justification

Internal Outfall 721 currently has discharge limitations of 90 lb/day average and 180 lb/day maximum. The proposed permit has oil and grease

NPDES PERMIT COMMENTS  
AND REQUESTED CHANGES  
LHC II AREA 700  
Page 5

discharge limitations of 10 mg/l average and 15 mg/l maximum. The permittee feels the proposed concentration levels are agreeable, but only if the concentrations are applied to a flow (continuous in this case) to arrive as "mass" limits similar to the existing permit.

Using the flow of 0.3 MGD (the average of the DMR monthly flows from 1983 to May, 1984), the oil and grease discharge limitations should be:

$$0.3 \text{ MGD} \times 8.34 \times 10 \text{ mg/l} = 25 \text{ lb/day average}$$

$$0.3 \text{ MGD} \times 8.34 \times 15 \text{ mg/l} = 38 \text{ lb/day maximum}$$

Requested Change to the Draft Permit

Change the oil and grease concentration limits of 10 mg/l average and 15 mg/l maximum to the equivalent mass limits of 25 lb/day average and 38 lb/day maximum for Internal Outfall 721.

COMMENT NO. 4, PAGE 26, DRAFT PERMIT

Benzene should be used as an indicator of purgeable aromatics and a mass discharge limitation, based on the following comments, should be utilized to arrive at a "max" discharge limitation of 10 lb/day after project completion in July 1, 1986. This limitation will then be utilized to arrive at the benzene limitation for Internal Outfall 1511.

Justification

The fact sheet states that this stream (721) contains treatable priority pollutants, that the permittee is installing a Benzene Removal System, and that no data is available other than flow. However, as previously stated, this stream is Outfall 007 in our existing permit. The Part 2C application for this stream did detect three purgeable aromatic compounds in four sampling attempts:

	<u>Concentration</u> <u>(mg/l)</u>				<u>Average</u> <u>Conc.</u> <u>(mg/l)</u>	<u>Average</u> <u>Conc.</u> <u>(mg/l)</u>	<u>Average</u> <u>lb/day</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>			
Benzene	4.2	3.4	4.0	5.1	4.18	4.2	7.4
Toluene	2.1	1.5	1.5	2.0	1.78	1.8	3.5
Ethylbenzene	0.21	0.16	0.11	0.16	0.16	0.16	0.3

NPDES PERMIT COMMENTS  
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LHC II AREA 700  
PAGE 6

The Fact Sheet states that the proposed BAT organic chemical guidelines were utilized as a regulation basis. Ethylbenzene is listed in the proposed guidelines with an effluent limitation of 0.275 mg/l. The information on the permittee's Part 2C application indicated that ethylbenzene was detected well below this level in all cases.

It should also be noted that, according to our data, benzene/toluene/ethylbenzene are present in a very consistent ratio of 20/10/1, respectively. Based upon process knowledge and composition, the permittee feels that benzene is the single major indicator that could be used to determine process compliance with this stream. In fact, all of the permittee's referrals to the treatment system have been expressed as "the Benzene Removal System", since benzene is the key component for the design criteria.

The proposed permit requires both mass and concentration limits. The permit writer has expressed that this is typical if the stream has a wide range of flow. The permittee's previous Comment No. 2, Page 26 of the draft permit explains the consistent flow from this internal outfall which supports the conversion of the concentration limits to mass limits using the average flow of 0.3 MGD.

It is unclear how the permit writer arrived at benzene limitations of 0.4 mg/l average and 0.65 mg/l maximum, but it is apparently based on steam stripping technology. The proposed organic guidelines development document examines the treatability from steam strippers, but it was developed primarily for homogeneous mixtures at solubility in water and not on actual operating conditions of heterogeneous mixtures in a sometimes complicated stream nature. Also, the document typically used 100% overall column efficiencies, gave little criteria on design and did not address variability factors associated with actual operating conditions. Apparently the permit writer did include a variability factor in arriving at the proposed limits, but the permittee feels that the proposed limits are too stringent to be achieved by steam stripping with the system that is currently under construction where there is no certainty of its actual operating performance. The permittee believes that 10 lb/day maximum benzene discharge from Internal Outfall 721 is appropriate and achievable. This limit ensures that the permittee must make every attempt to properly operate the system and it also allows for unexpected operating conditions as a result of a new system, never before tested. The EPA has the option to reopen any permit should the need ever arise to re-examine a discharge parameter or limit.

This capital project is expected to be in service by July 1, 1986, and benzene should only be reported until project completion at which time benzene will be regulated at Internal Outfall 1511.

Requested Change to the Draft Permit

Utilize benzene as an indicator of TPA to eliminate the additional monitoring of toluene and ethylbenzene. Eliminate the benzene discharge limitations of 0.4 mg/l average and 0.65 mg/l maximum with a "report" requirement until project completion in April, 1986 and then establish a benzene limitation of 10 lb/day maximum.

This benzene limitation should then be applied at Internal Outfall 1511 (downstream of the Mathanes Plant). See comments on Internal Outfall 1511.

COMMENT NO. 5, PAGE 26, DRAFT PERMIT

The phenol discharge limitations should be changed to a "report" requirement.

Justification

Initial meetings with the EPA and LDEQ (formerly LDNR) on the development of a BAT Permit indicated that both parties were primarily concerned with the removal of benzene from this wastewater stream. As a result, the permittee authorized a \$4.75 M capital project with the primary goals of greatly reducing benzene (and other purgeable aromatic compounds) and oil that is currently present in this stream with the installation of steam stripping and dissolved air floatation treatment. When the draft permit was issued discharge limitations of 0.5 mg/l average and 1.0 mg/l maximum were also placed on phenol. Available information for phenol is present in our Part 2C Application and also from a recent sampling that indicated the following:

<u>Sample</u>	<u>Concentration</u>	
	<u>mg/l</u>	<u>lb/day</u>
Part 2C #1	0.88	1.70
Part 2C #2	0.36	0.70
Part 2C #3	<0.01	<0.02
Part 2C #4	<0.01	<0.02
7/6/84	1.70	4.30
7/9/84	1.40	3.50
7/10/84	2.40	6.00
7/11/84	1.80	4.50
7/24/84	0.01	0.03
7/5/84	2.90	7.30
7/26/84	3.10	7.80
7/27/84	0.59	1.50
7/28/84	0.03	0.08
7/29/84	0.02	0.05
7/30/84	0.02	0.05
7/31/84	0.02	0.05
8/1/84	0.03	0.08

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The highest phenol level detected on these 17 samples was 7.8 pounds and the majority of the samples showed far less than this amount. Phenol is formed as an undesired by-product by the presence of oxygen in the ethane/propane process. Phenol is not collected as a specific compound in this process and remains in very low concentrations and it is reasonable to expect low phenol discharges similar to the above levels.

The current \$4.75 M steam stripping and dissolved air flotation project will not result in a significant reduction in phenol based on an EPA article (treatability of the organic priority pollutants by steam stripping, Hwang and Fahrenthold) that claims "not more than 23% removal," for phenol. This EPA claim is also supported by three data points that the permittee used to simulate approximate conditions of this stream for phenol steam stripping:

<u>Date</u>	<u>Phenol into Stripper mg/l</u>	<u>Phenol out of Stripper mg/l</u>
7/13/84	11.50	6.90
7/14/84	9.03	10.00
7/15/84	10.30	9.70

It would be arbitrary to require the permittee to meet the proposed phenol discharge limitations of 0.5 mg/l average and 1.0 mg/l maximum on a stream that EPA claims will not result in more than a 23% removal. The permittee realizes that the EPA and LDEQ are interested in identifying phenol sources and a "report" requirement in this case would be beneficial to demonstrate that phenol is not a concern from this internal outfall.

Requested Change to the Draft Permit

Delete the discharge limitations for phenol and add a "report" only requirement at the proposed frequency of once per week.

COMMENT NO. 6, PAGE 26, DRAFT PERMIT

Naphthalene should be utilized as an indicator for other polynuclear aromatics (i.e. fluorene) as stated in the Fact Sheet, with a "report" only requirement for mass discharge at Internal Outfall 721.

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AND REQUESTED CHANGES  
LHC II AREA 700  
PAGE 9

*The state concurs with  
DEQ. The state is recommending  
monitoring and limits as follows:*  
*Acenaphthylene 100 mg/L*  
*Fluorene 100 mg/L*  
*Phenanthrene 100 mg/L*

Justification

Fluorene is a polynuclear aromatic and page 18 of the Fact Sheet for the 2200 Area states that naphthalene is considered an indicator for several polynuclear aromatics (PNA's). The permittee's Part 2C data for Internal Outfall 721 indicates that naphthalene is the most predominant PNA (averaged 3.8 lb/day), while fluorene averaged only 1 lb/day. The permittee does not understand the need to set discharge limitations and monitoring requirements on a second PNA compound (fluorene) since naphthalene is the primary component.

Page 18 of the Fact Sheet for the 2200 Area indicates that "very little data is available on the results of treatment technology for naphthalene". The permittee agrees with this conclusion. However, we strongly disagree with the permit writer's conclusion that "Apparently, naphthalene is effectively removed by well-operated bio-systems or else it would have been encountered in the organic chemical guideline development work." The proposed organic chemical guidelines, Appendix E, states that naphthalene is one of the compounds which "are not proposed for regulation at this time, generally due to lack of adequate data". The permittee feels that, considering the above information, setting discharge limitations for naphthalene would be extremely arbitrary with no sound justification.

Since treatment data is not available for naphthalene, it would be beneficial to require the mass reporting of naphthalene in an effort to establish a long term data base for reduction of this compound by steam stripping.

Requested Change to the Draft Permit

Delete the discharge limitations and monitoring requirement for fluorene and change the naphthalene discharge limitations of 0.5 mg/L average and 1.0 mg/L maximum to a "report" only requirement of mass discharge.

COMMENT NO. 7, PAGE 30, DRAFT PERMIT

Recent phenol data for Internal Outfall 741 indicate an average discharge of less than 30 ppb, and its lack of presence justifies the need to delete this parameter.